262

TA-D900

AEP Model
UK Model

ELECTRONIC CROSSOVER NETWORK

SPECIFICATIONS

GENERAL

Power Requirements: 110 V, 120 V, 220 V, or 240 V ac, 50/60 Hz
AEP model: 220 V factory preset
UK model: 240 V factory preset

Power Consumption: 15 watts

Dimensions: Approx. 480(w) x 80(h) x 400(d) mm ($18\frac{7}{8}$ (w) x $3\frac{1}{8}$ (h) x $15\frac{7}{8}$ (d) inches)
Including projecting parts and controls

Weight: Approx. 8.5 kg (18 lbs 12 oz), net
Approx. 9.5 kg (20 lbs 15 oz), in shipping carton

System: Filter characteristics: 24 dB-per-octave Bessel function high-pass and low-pass
Buffer amp: DC amp

Crossover Frequency:
UNIT 0: 50 Hz, 80 Hz, 100 Hz
UNIT 1: 140 Hz, 225 Hz, 280 Hz
UNIT 2: 500 Hz, 800 Hz, 1 kHz
UNIT 3: 1.25 kHz, 2 kHz, 2.5 kHz
UNIT 4: 5 kHz, 8 kHz, 10 kHz

Bandpass Gain: 0 dB

Inputs: 1 volt rated/7 volts maximum, 50 kΩ

Outputs: 1 volt rated/7 volts maximum, 100 Ω

Harmonic Distortion: Less than 0.05 % at 1 volt output

Signal-to-noise-ratio: Better than 110 dB (1 volt rated input, short-circuited input, A weighting)

Frequency Response: DC-100 kHz $^{+0}_{-1}$ dB

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

MICROFILM

SONY®

SERVICE MANUAL

SECTION 1
OUTLINE

1-1. CIRCUIT DESCRIPTION

The TA-D900 is an electronic crossover network designed for use in multi-amplifier stereo systems. The input audio signal is divided into a number of different frequency bands, each band being amplified independently and passed on to individual speakers. See Fig.3 for an outline of the circuit diagram.

Each set of crossover frequency filters have been incorporated into separate plug-in type units. Suitable crossover frequencies for a wide range of speakers available on the market may be set by plugging in an appropriate combination of the 4 different units.

The crossover frequency of each unit is determined by the capacitance of the filters, and the frequency selector switches S1–S4. For 2-way to 4-way multi-amplifier systems, the crossover frequencies are set by adjusting S1–S4, and by rearranging the filter units in accordance with the crossover frequencies of the speakers employed. Levels are also adjusted to match the efficiency of each speaker.

Note that the following description refers to a 4-way multi-amplifier system.

1. Pre-buffer Amplifier Stage (see Fig. 1)

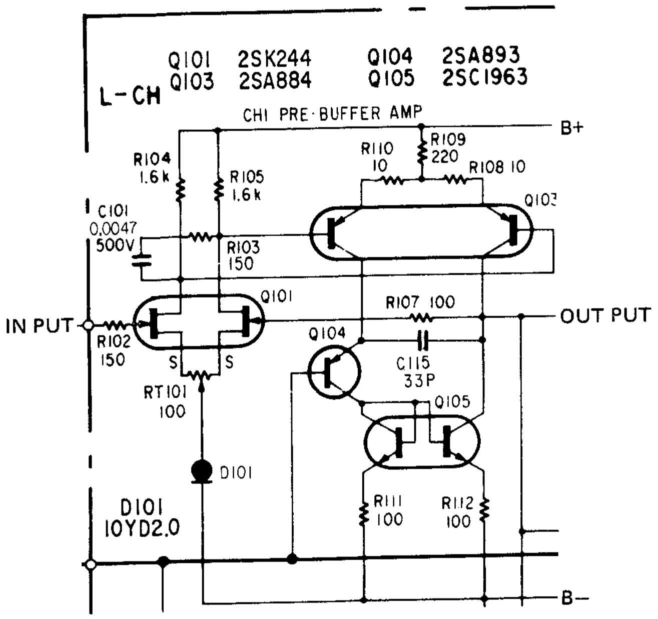


Fig. 1

The purpose of the pre-buffer amplifier (Q101, 103–105, D104) is to eliminate the influence of the preamplifier and connecting cord upon the filters. With 100% negative feedback applied to the first-stage differential amplifier (Q101) by resistor R107 (100 Ω), the pre-buffer amplifier has high input impedance and low output impedance. In addition, a current-mirror loaded 2-stage differential amplifier structure reduces distortion to a very low level. Furthermore, in order to make the low channel amplifier a pure DC amplifier employing no coupling capacitors, a dual FET differential amplifier which suppresses DC drift has been used in the first stage (Q101). Dual transistors have also been used in the second stage differential amplifier (Q103) and current mirror (Q105) to further suppress DC drift. By connecting the base of Q104 to ground, the collector voltage of the PNP transistor on the left hand side of Q103 is reduced to almost 0V, thereby equalizing the collector voltage of both PNP transistors in Q103. The dual transistor Pc (power input dc to collector) are therefore very much the same, resulting in the amount of drift in both sides being balanced. The impedance-converted signal is then passed from the pre-buffer amplifier to CH1–CH4 where it is divided into 4 different frequency bands.

2. LOW Channel Stage (CH-1)

The low-pass filters employed in this stage achieve a very sharp cut-off slope of 24 dB/oct (12 dB/oct at filter 1-1 and again at filter 1-2). (See Fig. 3-1).

Each low-pass filter buffer amplifier has a high input impedance and low output impedance current-mirror loaded 2-stage differential amplifier, similar to the pre-buffer amplifier (Q101, 103–105, D104). The crossover frequency is selected by the freq-1 switch (S1), thereby defining the f_1 frequency band.

The filter output signal is then passed via the level adjustment control (RV601) on to the output buffer amplifier (Q106, 108–110, D104) where the impedance is again converted, and finally appears on the J102 output terminal. The role of this output buffer amplifier is to maintain the crossover-frequency and the input impedance of the power amplifier.

3. MID-LOW Channel Stage (CH-2)

The signal whose impedance was converted in the pre-buffer amplifier is narrowed down to a frequency band between f_1 and f_2 according to the freq-1 and freq-2 settings (see Fig. 3-2). Both the high-pass filter and low-pass filter feature sharp cut-off curves of 24 dB/oct (12 dB/oct cut-off characteristics in filters 2-1, 2-2, 2-3, and 2-4).

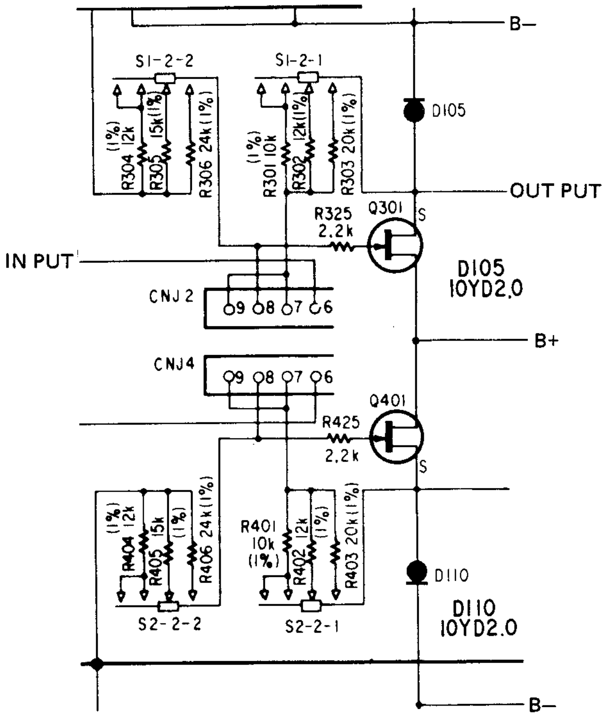


Fig. 2

The basic circuitry employed in the buffer amplifiers in each of the filters in the MID-LOW channel stage is outlined in Fig. 2. Each of these buffer amplifiers are source-follower amplifiers employing constant current diodes and FETs designed for high frequency circuits. The cascade-connected high frequency FET is used at the source follower, and a 100% negative feedback is applied for high input impedance and low output impedance. The load for this amplifier is D105. And since it is a constant current load, there is very little distortion, and no interference from the filter unit power supplies.

Since there is no need to operate the MID-LOW channel stage anywhere near the DC region, coupling capacitors have been employed prior to the RV602 control and the output terminals, thereby cutting DC drift and DC offset. The capacitor employed in front of RV602 consists of a tantalum capacitor (C305) connected in parallel with a film capacitor (C306), and has been inserted in order to prevent deterioration of sound quality.

The MID-LOW channel stage employs an output buffer amplifier (Q111) in the output stage for the same reason as the LOW channel stage.

4. MID-HIGH Channel Stage (CH-3)

The MID-HIGH channel stage employs the same basic circuit structure as the MID-LOW channel stage. The frequency band between the f_2 and f_3 crossover frequencies is set by the freq-2 and freq-3 switch positions (see Fig. 3-3).

5. HIGH Channel Stage (CH-4)

The circuitry of this stage is basically the same as the high-pass filter and output buffer amplifier employed in the MID-HIGH channel stage. The frequency band is determined by the f_3 crossover frequency set by the freq-3 switch position (see Fig. 3-4).

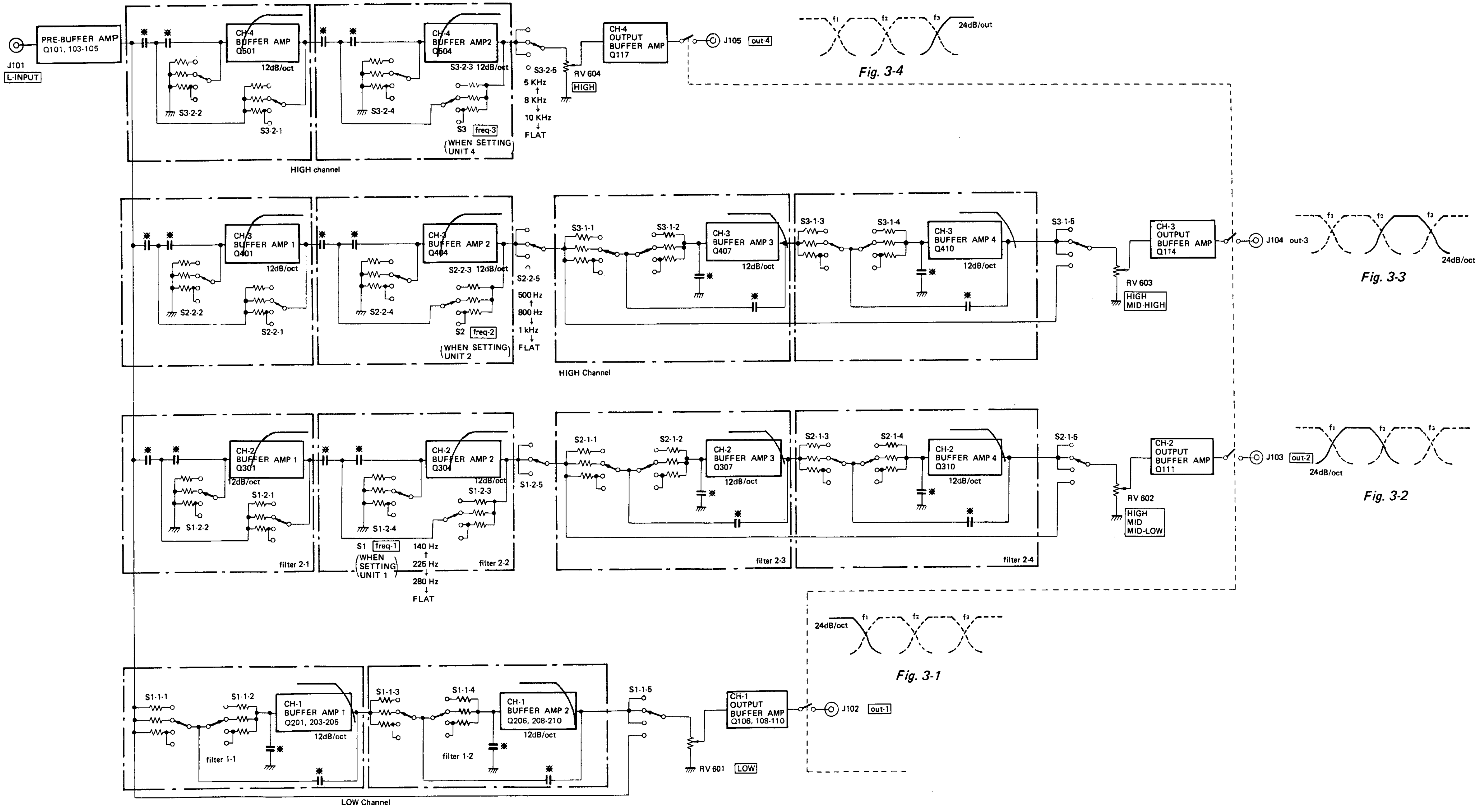

J101
L-INPUT
PRE-BUFFER AMP
Q101, 103-105
CH-4 BUFFER AMP Q501
12dB/oct
S3-2-2
S3-2-1
CH-4 BUFFER AMP2 Q504
S3-2-3 12dB/oct
S3-2-4
S3 freq-3
(WHEN SETTING UNIT 4)
S3-2-5
5 KHz
8 KHz
10 KHz
FLAT
RV 604
HIGH
CH-4 OUTPUT BUFFER AMP Q117
J105 out-4
HIGH channel
24dB/out
f1
f2
f3
CH-3 BUFFER AMP 1 Q401
12dB/oct
S2-2-2
S2-2-1
CH-3 BUFFER AMP 2 Q404
S2-2-3 12dB/oct
S2-2-4
S2 freq-2
(WHEN SETTING UNIT 2)
S2-2-5
500 Hz
800 Hz
1 kHz
FLAT
S3-1-1
S3-1-2
CH-3 BUFFER AMP 3 Q407
12dB/oct
S3-1-3
S3-1-4
CH-3 BUFFER AMP 4 Q410
12dB/oct
S3-1-5
HIGH Channel
RV 603
HIGH
MID-HIGH
CH-3 OUTPUT BUFFER AMP Q114
J104 out-3
24dB/oct
CH-2 BUFFER AMP 1 Q301
12dB/oct
S1-2-1
S1-2-2
filter 2-1
CH-2 BUFFER AMP 2 Q304
12dB/oct
S1-2-3
S1-2-4
S1 freq-1
(WHEN SETTING UNIT 1)
140 Hz
225 Hz
280 Hz
FLAT
filter 2-2
S1-2-5
S2-1-1
S2-1-2
CH-2 BUFFER AMP 3 Q307
12dB/oct
filter 2-3
S2-1-3
S2-1-4
CH-2 BUFFER AMP 4 Q310
12dB/oct
filter 2-4
S2-1-5
RV 602
HIGH
MID
MID-LOW
CH-2 OUTPUT BUFFER AMP Q111
J103 out-2
24dB/oct
24dB/oct
S1-1-1
S1-1-2
CH-1 BUFFER AMP 1 Q201, 203-205
12dB/oct
filter 1-1
S1-1-3
S1-1-4
CH-1 BUFFER AMP 2 Q206, 208-210
12dB/oct
filter 1-2
S1-1-5
RV 601
LOW
CH-1 OUTPUT BUFFER AMP Q106, 108-110
J102 out-1
LOW Channel

Fig. 3-4

Fig. 3-3

Fig. 3-2

Fig. 3-1

Fig. 3

The capacitance values marked ✱ are decided by setting the units 0 to 4.

6. Muting Circuit (Fig. 4)

By activating a relay circuit, the muting circuit disconnects the signal line, and thereby prevents the appearance of any signals at the output terminals when the power switch is turned on and off. The "pop" noises generated at this time are therefore completely silenced. Note that this muting circuit is designed to release the output line from ground when the muting relays (RY1–RY8) are "on".

In addition, whenever the frequency response select cover is opened to exchange filter units, S8 is switched off, and again prevents the appearance of any signals at the output terminals.

1) When the power switch is turned on:

(a) As soon as the power switch is turned on, B+ will commence to "charge up". C805 will also commence to charge up, requiring 2 to 3 seconds (as determined by the R804/C805 time constant) to be fully charged. During this period Q801 and Q802 will remain off, thereby keeping the muting relays (RV1–RV8) off as well. Therefore, no signals will appear at the output terminals, effectively muting out the power switching noise.

(b) 2 to 3 seconds after turning the power switch on, the potential on the base of Q801 reaches "on" potential, resulting in this transistor turning on.

(c) As soon as Q801 is turned on, Q802 is also turned on, resulting in muting relays (RY1–RY8) being turned on, and the output signals appear at the output terminals.

2) When the power switch is turned off:

(a) At the same time that the power switch is turned off, the positive potential which had been applied to the cathode of D807 via D806 decreases, resulting in the D807 diode being turned on by the forward biasing.

(b) The charge on C805 is consequently discharged via D807 and R807, resulting in Q801 and Q802 both being turned off. The muting relays are also turned off, preventing any output signals from appearing at the output terminals. The "pop" noise generated when the power switch is turned off is also effectively muted.

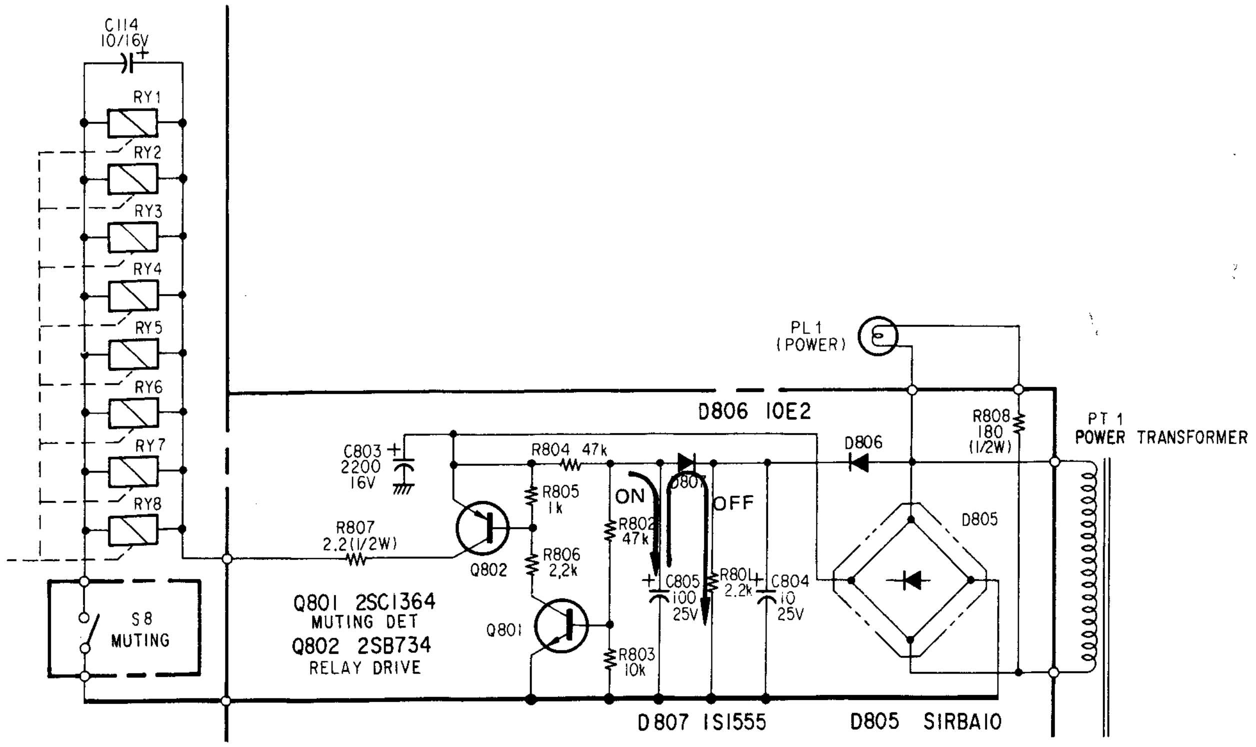

C114
10/16V
RY1
RY2
RY3
RY4
RY5
RY6
RY7
RY8
S8
MUTING
C803
2200
16V
R807
2.2(1/2W)
R804 47k
R805
1k
R806
2.2k
Q802
Q801
R803
10k
R802
47k
ON
OFF
D807
C805
100
25V
R801
2.2k
C804
10
25V
PL1
(POWER)
D806 10E2
D806
R808
180
(1/2W)
D805
PT1
POWER TRANSFORMER
Q801 2SC1364
MUTING DET
Q802 2SB734
RELAY DRIVE
D807 1S1555
D805 SIRBA10

Fig. 4

3) When the frequency response select cover is opened (Fig. 5):

When the frequency response select cover is opened, S8 is turned off, thereby cutting off the voltage being applied to the muting relays (RY1–RY8). These relays are therefore turned off, and no signals will appear at the output terminals. So none of the noise generated when exchanging units will reach the speakers.

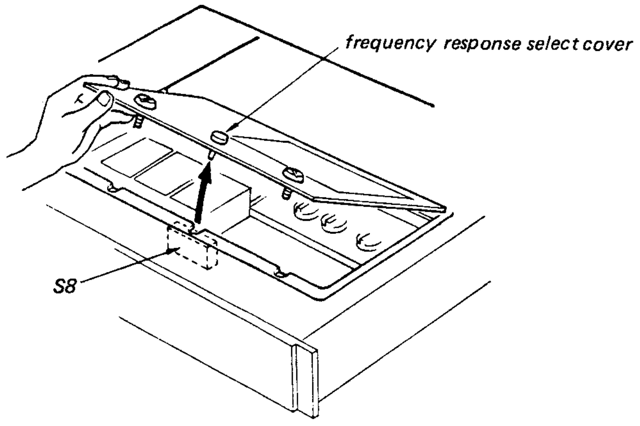

frequency response select cover
S8

Fig. 5

7. Bass Boost Circuit

LOW channel stage (CH-1) contains the bass boost circuit which compensates for low frequency of the speakers. In this circuit, response in dB at frequency of 50 Hz becomes 6 dB at maximum, in steps of 1.5 dB, owing to the T-type filter in NFB loop (negative feedback loop) of the output buffer amp.

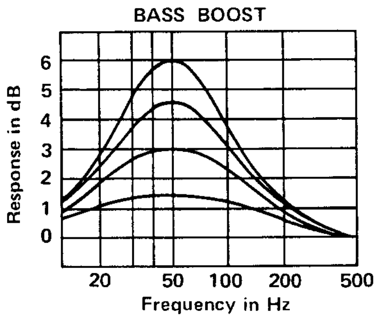
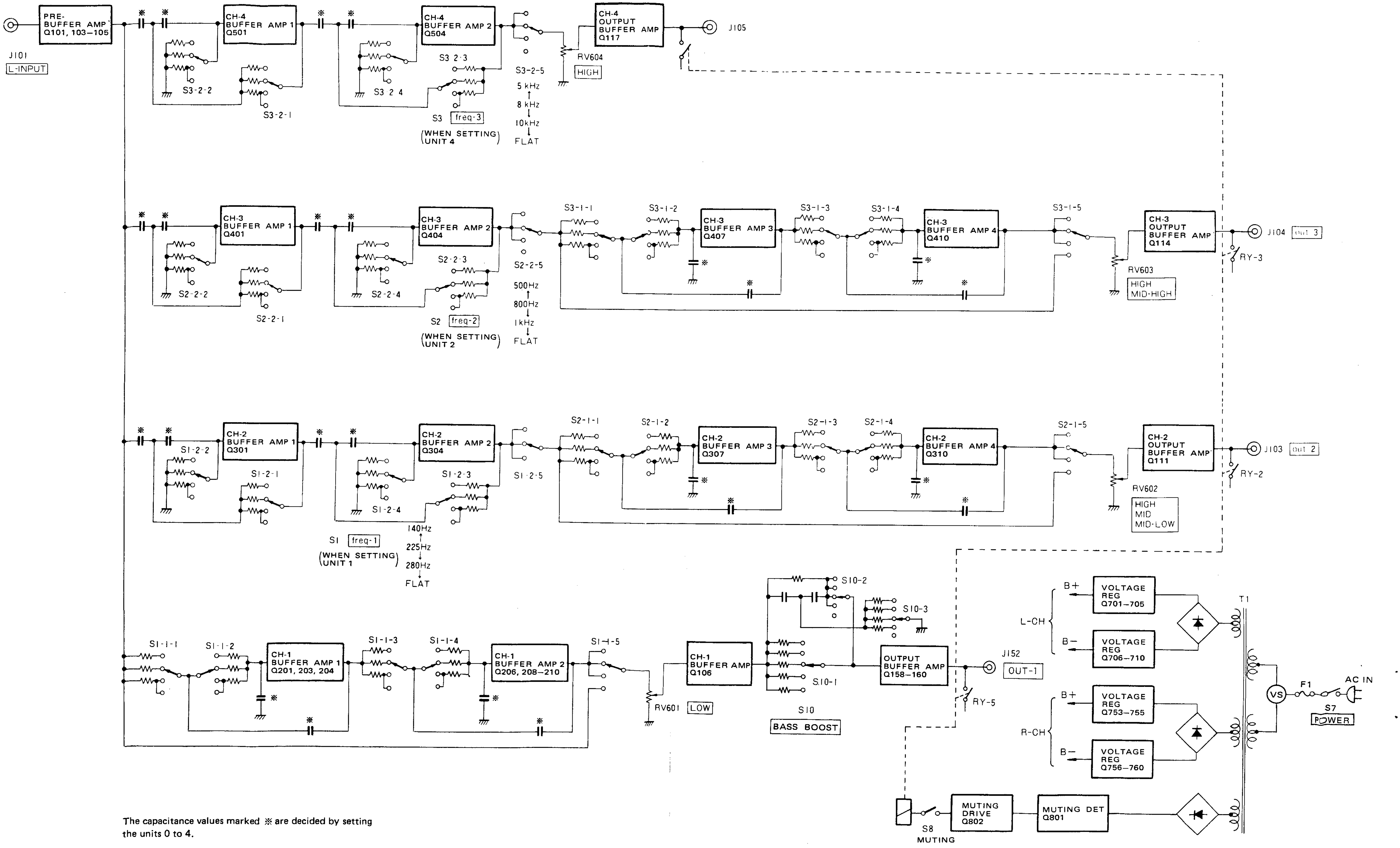


Fig. 6

1-2. BLOCK DIAGRAM


J101
L-INPUT
PRE-BUFFER AMP Q101, 103–105
CH-4 BUFFER AMP 1 Q501
CH-4 BUFFER AMP 2 Q504
CH-4 OUTPUT BUFFER AMP Q117
J105
RV604
HIGH
S3-2-2
S3-2-1
S3 2 4
S3 2 3
S3-2-5
S3 freq-3
(WHEN SETTING UNIT 4)
5 kHz
8 kHz
10kHz
FLAT
CH-3 BUFFER AMP 1 Q401
CH-3 BUFFER AMP 2 Q404
CH-3 BUFFER AMP 3 Q407
CH-3 BUFFER AMP 4 Q410
CH-3 OUTPUT BUFFER AMP Q114
S2-2-2
S2-2-1
S2-2-4
S2-2-3
S2-2-5
S2 freq-2
(WHEN SETTING UNIT 2)
500Hz
800Hz
1kHz
FLAT
S3-1-1
S3-1-2
S3-1-3
S3-1-4
S3-1-5
RV603
HIGH
MID-HIGH
J104
out 3
RY-3
CH-2 BUFFER AMP 1 Q301
CH-2 BUFFER AMP 2 Q304
CH-2 BUFFER AMP 3 Q307
CH-2 BUFFER AMP 4 Q310
CH-2 OUTPUT BUFFER AMP Q111
S1-2-2
S1-2-1
S1-2-4
S1-2-3
S1-2-5
S1 freq-1
(WHEN SETTING UNIT 1)
140Hz
225Hz
280Hz
FLAT
S2-1-1
S2-1-2
S2-1-3
S2-1-4
S2-1-5
RV602
HIGH
MID
MID-LOW
J103
out 2
RY-2
S1-1-1
S1-1-2
S1-1-3
S1-1-4
S1-1-5
CH-1 BUFFER AMP 1 Q201, 203, 204
CH-1 BUFFER AMP 2 Q206, 208–210
RV601
LOW
CH-1 BUFFER AMP Q106
S10-2
S10-3
S10-1
S10
BASS BOOST
OUTPUT BUFFER AMP Q158–160
J152
OUT-1
RY-5
L-CH
B+
B−
VOLTAGE REG Q701–705
VOLTAGE REG Q706–710
R-CH
VOLTAGE REG Q753–755
VOLTAGE REG Q756–760
T1
VS
F1
AC IN
S7
POWER
S8
MUTING
MUTING DRIVE Q802
MUTING DET Q801

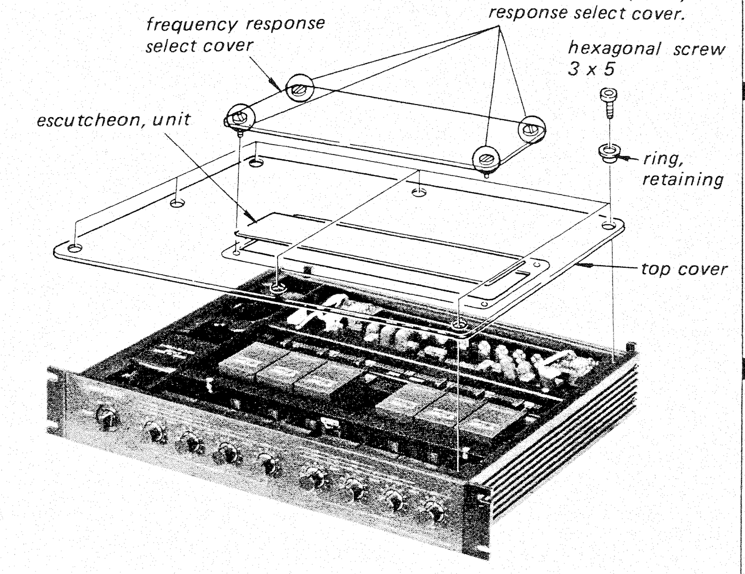
The capacitance values marked ※ are decided by setting the units 0 to 4.

SECTION 2
DISASSEMBLY

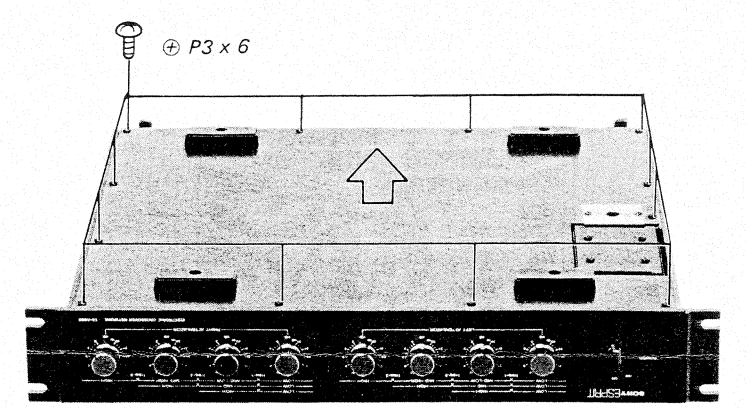
2-1. REMOVAL

Note: Follow the disassembly procedure in the numerical order given.

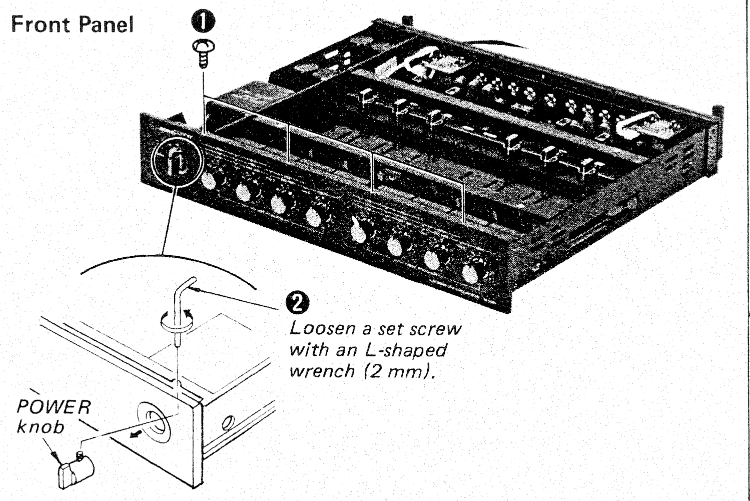
Top Cover/ Frequency Response Select Cover


Loosen four screws and remove the frequency response select cover.
frequency response select cover
hexagonal screw 3 x 5
escutcheon, unit
ring, retaining
top cover

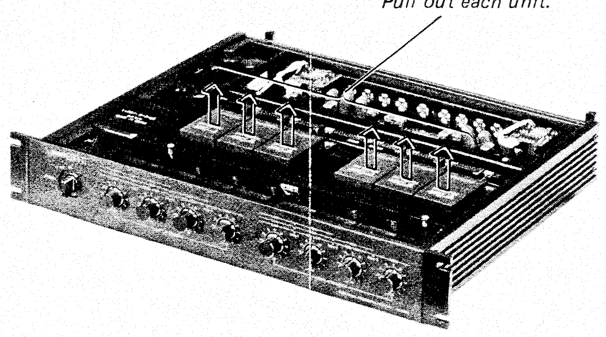
Bottom Plate



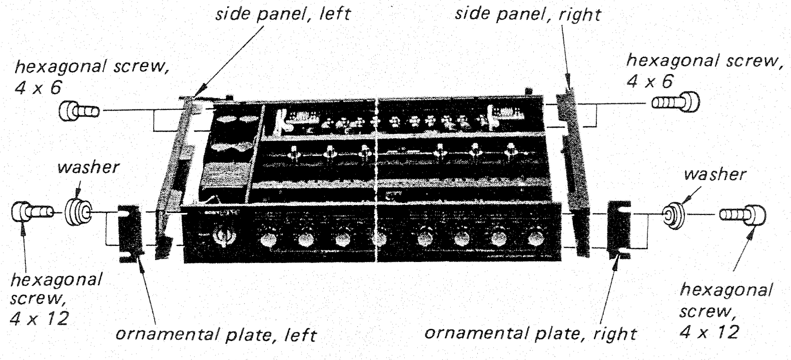
Front Panel


❷ Loosen a set screw with an L-shaped wrench (2 mm).
❶
POWER knob

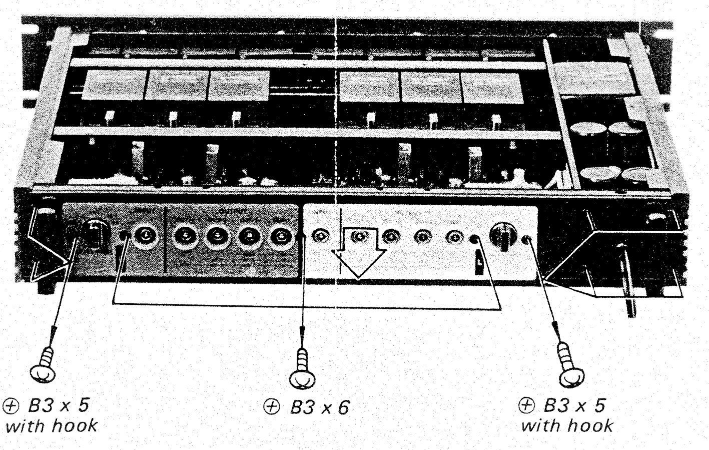
Unit


Pull out each unit.

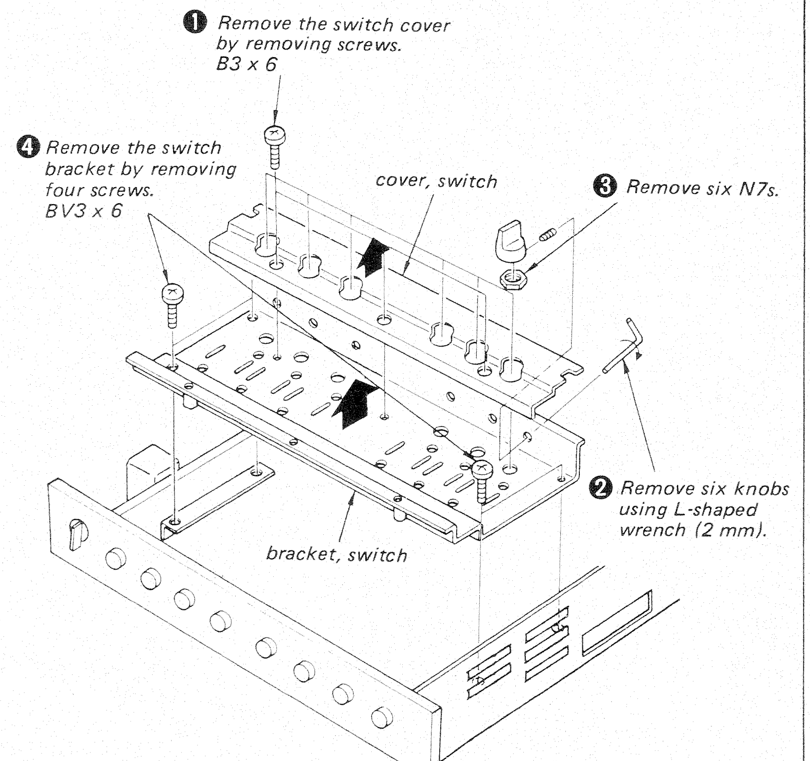
Side Panel/Ornamental Plate


side panel, left
side panel, right
hexagonal screw, 4 x 6
hexagonal screw, 4 x 6
washer
washer
hexagonal screw, 4 x 12
ornamental plate, left
ornamental plate, right
hexagonal screw, 4 x 12

Rear Panel


⊕ B3 x 5 with hook
⊕ B3 x 6
⊕ B3 x 5 with hook

Switch Cover/Switch Bracket


❶ Remove the switch cover by removing screws. B3 x 6

❷ Remove six knobs using L-shaped wrench (2 mm).

❸ Remove six N7s.

❹ Remove the switch bracket by removing four screws. BV3 x 6
cover, switch
bracket, switch

OFFSET A

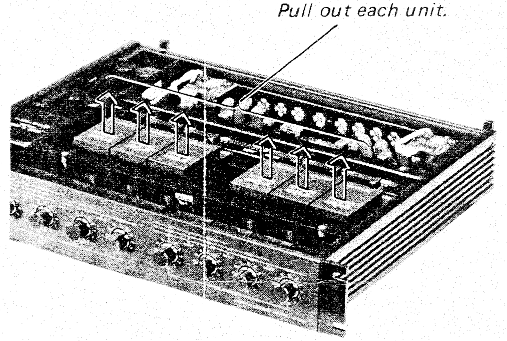
- **Settings**
  POWER
  LEFT, R
- **Procedur**

1. Short-cir
2. Adjust e
   order (
   at each te

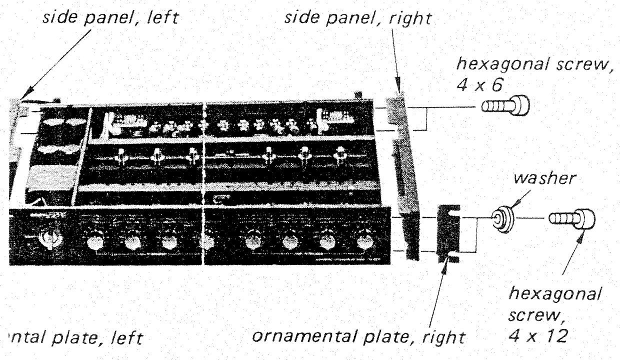
MUTING TI

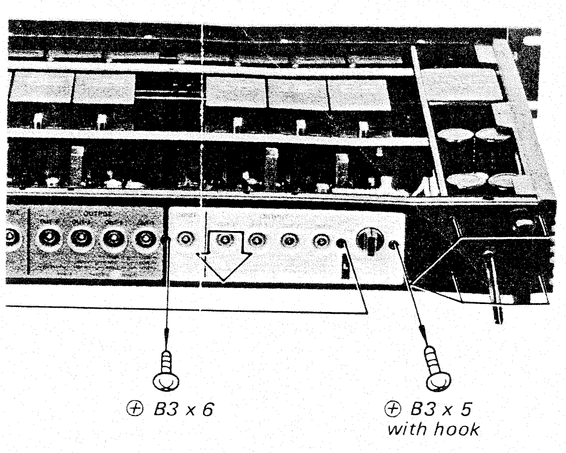
Check the o

1. **POWER S**
   Two or
   switch on
2. **POWER S**
   RY1–RY
   is turned

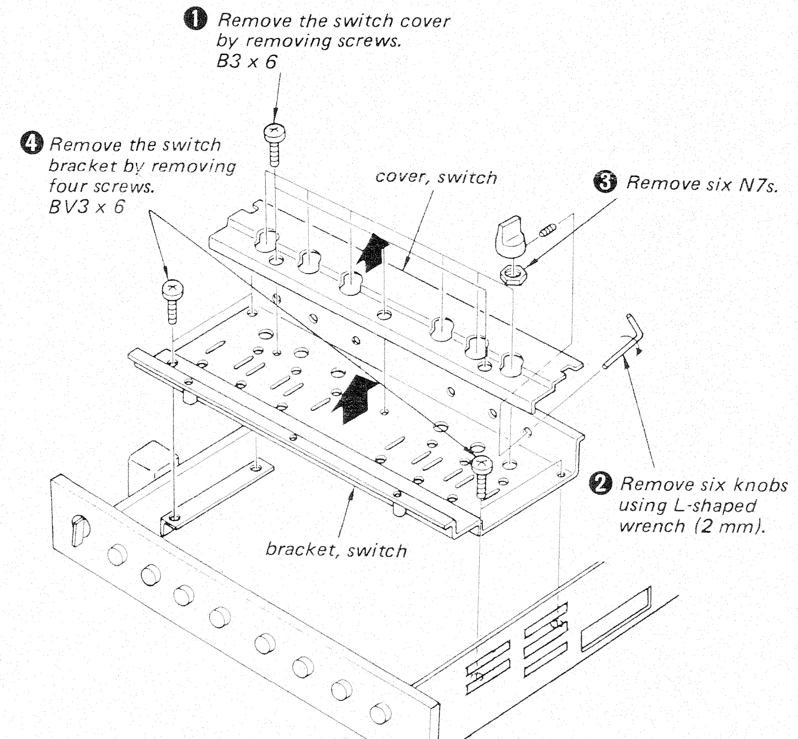

Pull out each unit.

mental Plate


side panel, left
side panel, right
hexagonal screw,
4 x 6
washer
hexagonal
screw,
4 x 12
ntal plate, left
ornamental plate, right


⊕ B3 x 6
⊕ B3 x 5
with hook

Switch Cover/Switch Bracket


❶ Remove the switch cover by removing screws.
B3 x 6

❹ Remove the switch bracket by removing four screws.
BV3 x 6

❸ Remove six N7s.

❷ Remove six knobs using L-shaped wrench (2 mm).

cover, switch
bracket, switch

SECTION 3
ADJUSTMENTS

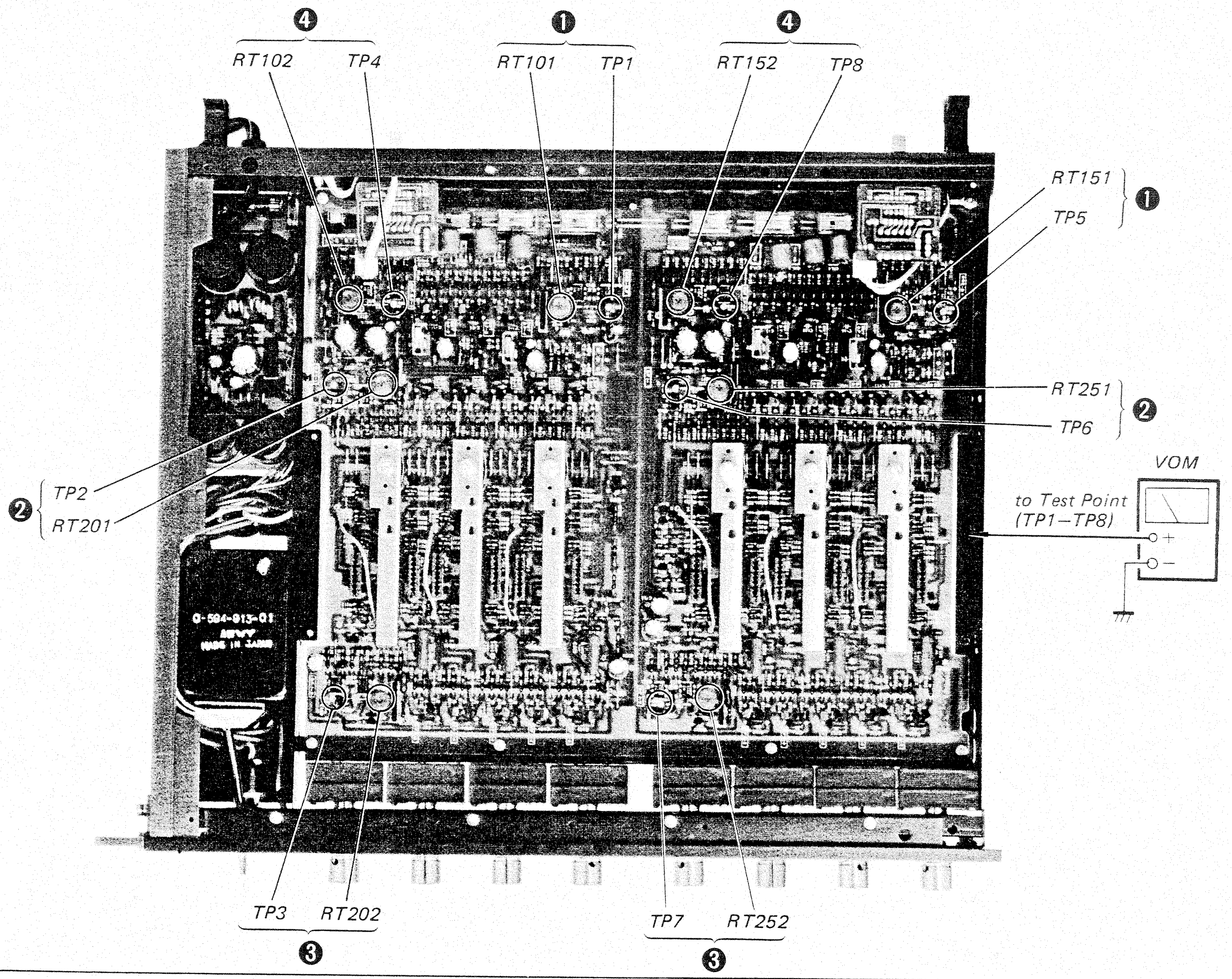
OFFSET ADJUSTMENT

- **Settings**
  POWER switch: ON
  LEFT, RIGHT ATTENUATOR: 0 dB (MAX)
- **Procedure**

1. Short-circuit both INPUT jacks.
2. Adjust each adjustable resistor in the numerical order (❶ – ❹) so that the VOM reads 0 V at each test point (TP1–8).

L-CH	R-CH
❶ RT101 (TP1)	❶ RT151 (TP5)
❷ RT201 (TP2)	❷ RT251 (TP6)
❸ RT202 (TP3)	❸ RT252 (TP7)
❹ RT102 (TP4)	❹ RT152 (TP8)

Specification: 0 V ± 0.1 mV dc


❹
RT102
TP4
❶
RT101
TP1
❹
RT152
TP8
RT151
TP5
❶
RT251
TP6
❷
VOM
to Test Point
(TP1–TP8)
+
−
❷
TP2
RT201
TP3
RT202
❸
TP7
RT252
❸

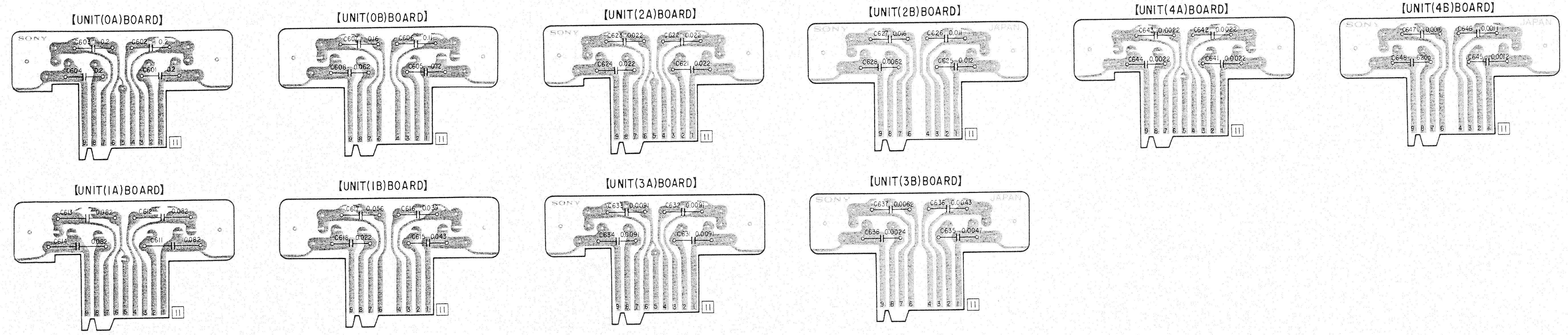
MUTING TIME CHECK

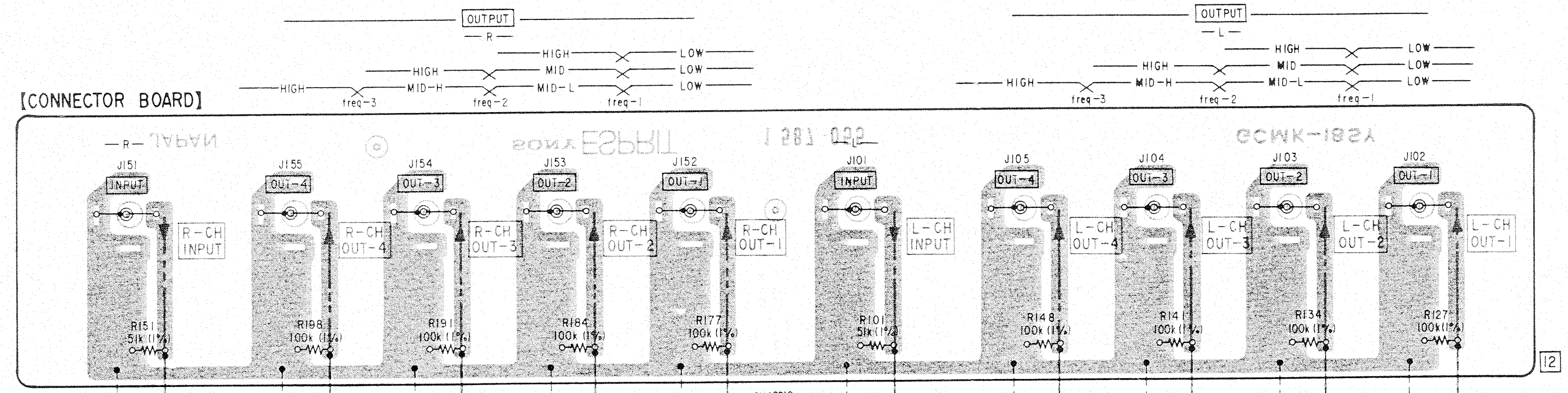
Check the operation of each relay (RY1–RY8).

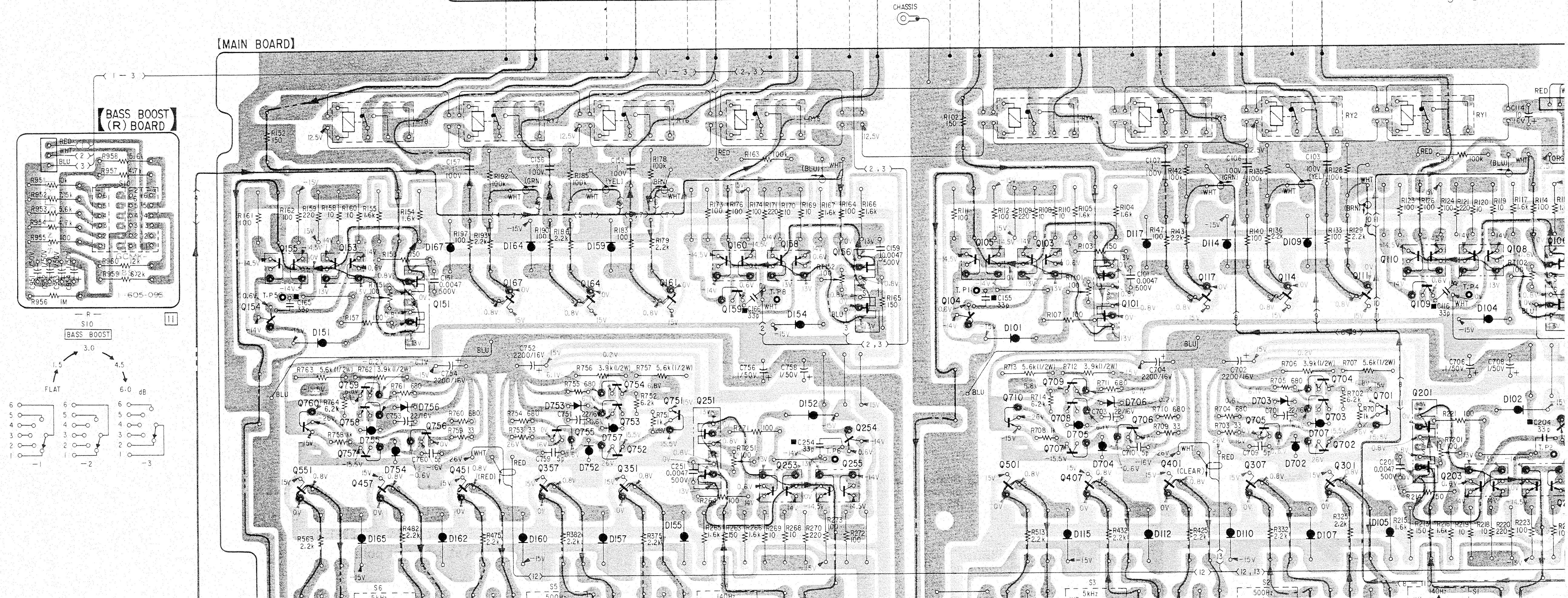
1. **POWER Switch ON**
   Two or three seconds after turning the power switch on, RY1–RY8 are energized.
2. **POWER Switch OFF**
   RY1–RY8 are released as soon as POWER switch is turned off.

SECTION 4
DIAGRAMS

4-1. MOUNTING DIAGRAM

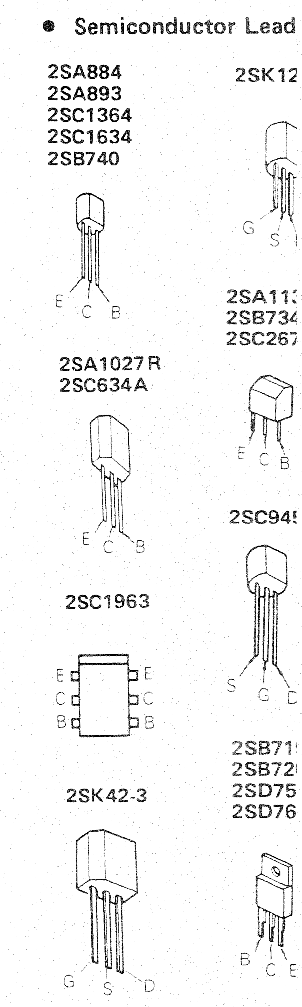

[UNIT(0A)BOARD]
[UNIT(0B)BOARD]
[UNIT(2A)BOARD]
[UNIT(2B)BOARD]
[UNIT(4A)BOARD]
[UNIT(4B)BOARD]
[UNIT(1A)BOARD]
[UNIT(1B)BOARD]
[UNIT(3A)BOARD]
[UNIT(3B)BOARD]
11


OUTPUT
R
L
HIGH
MID
LOW
MID-H
MID-L
freq-3
freq-2
freq-1
[CONNECTOR BOARD]
J151 INPUT
J155 OUT-4
J154 OUT-3
J153 OUT-2
J152 OUT-1
J101 INPUT
J105 OUT-4
J104 OUT-3
J103 OUT-2
J102 OUT-1
R-CH INPUT
R-CH OUT-4
R-CH OUT-3
R-CH OUT-2
R-CH OUT-1
L-CH INPUT
L-CH OUT-4
L-CH OUT-3
L-CH OUT-2
L-CH OUT-1
12

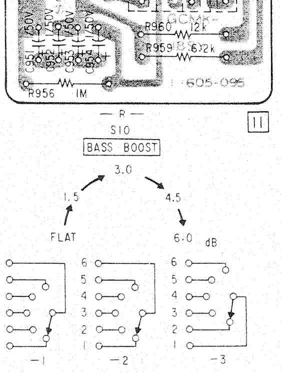

CHASSIS
[MAIN BOARD]
【BASS BOOST (R) BOARD】
11
S10
BASS BOOST
FLAT
1.5
3.0
4.5
6.0 dB
-1
-2
-3
RY1
RY2
RY3

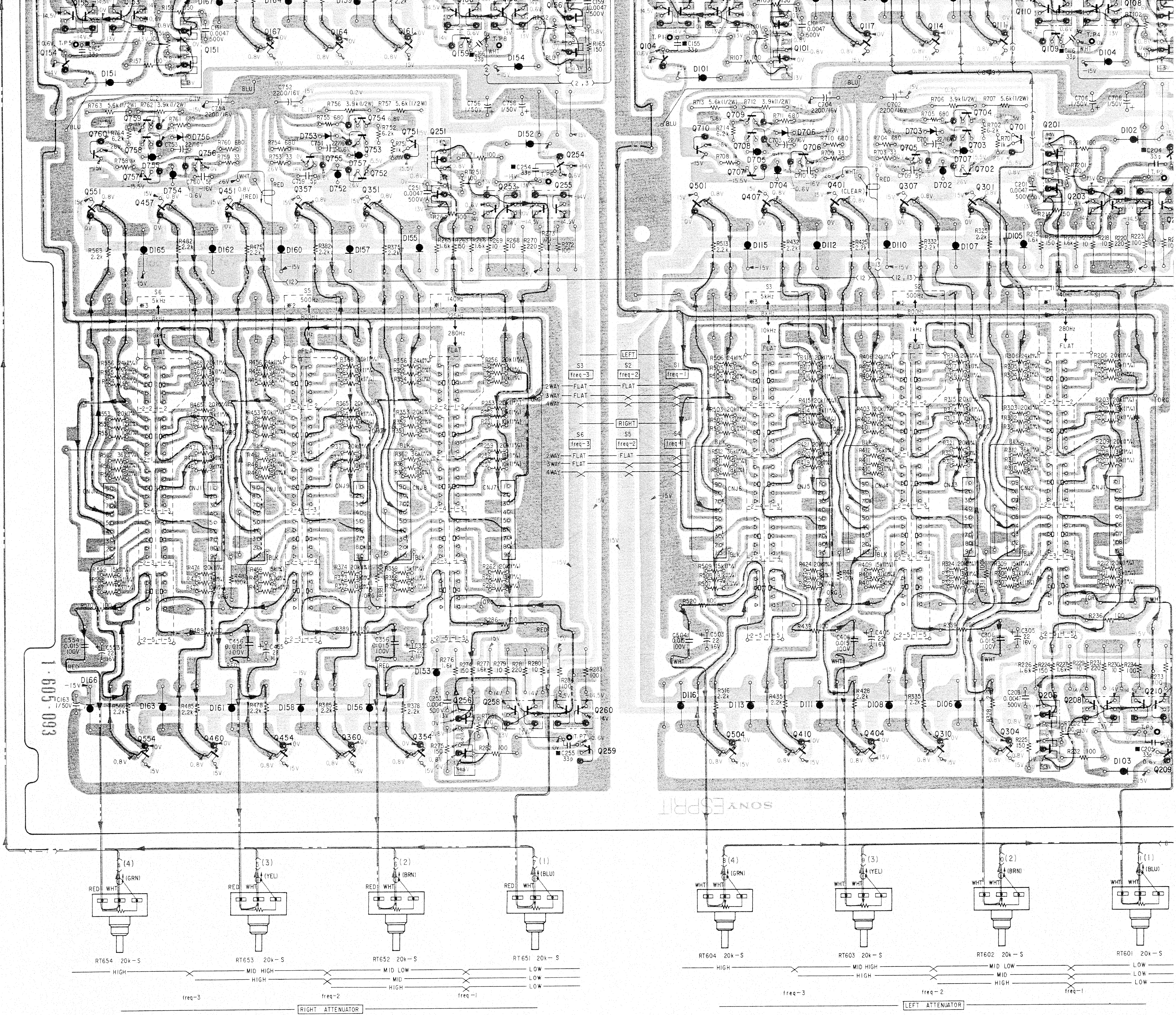
Q	D
155 153 105 103 160 158 110 108 151 156 101 106 167 164 161 159 117 114 111 109	167 164 159 117 114 109
154 104 759 754 709 704 758 753 708 703 760 751 710 701 756,755 706,705 757 752 251 254 707, 702,201,204	154 104 151 101 756,753,706,703 152 102 755,757,705,707 754,752,704,702
551,457,451,357,351 501,407,401,307,301 253,255,203,205	165,162,160,157,155 115,112,110,107,105

- Semiconductor Lead

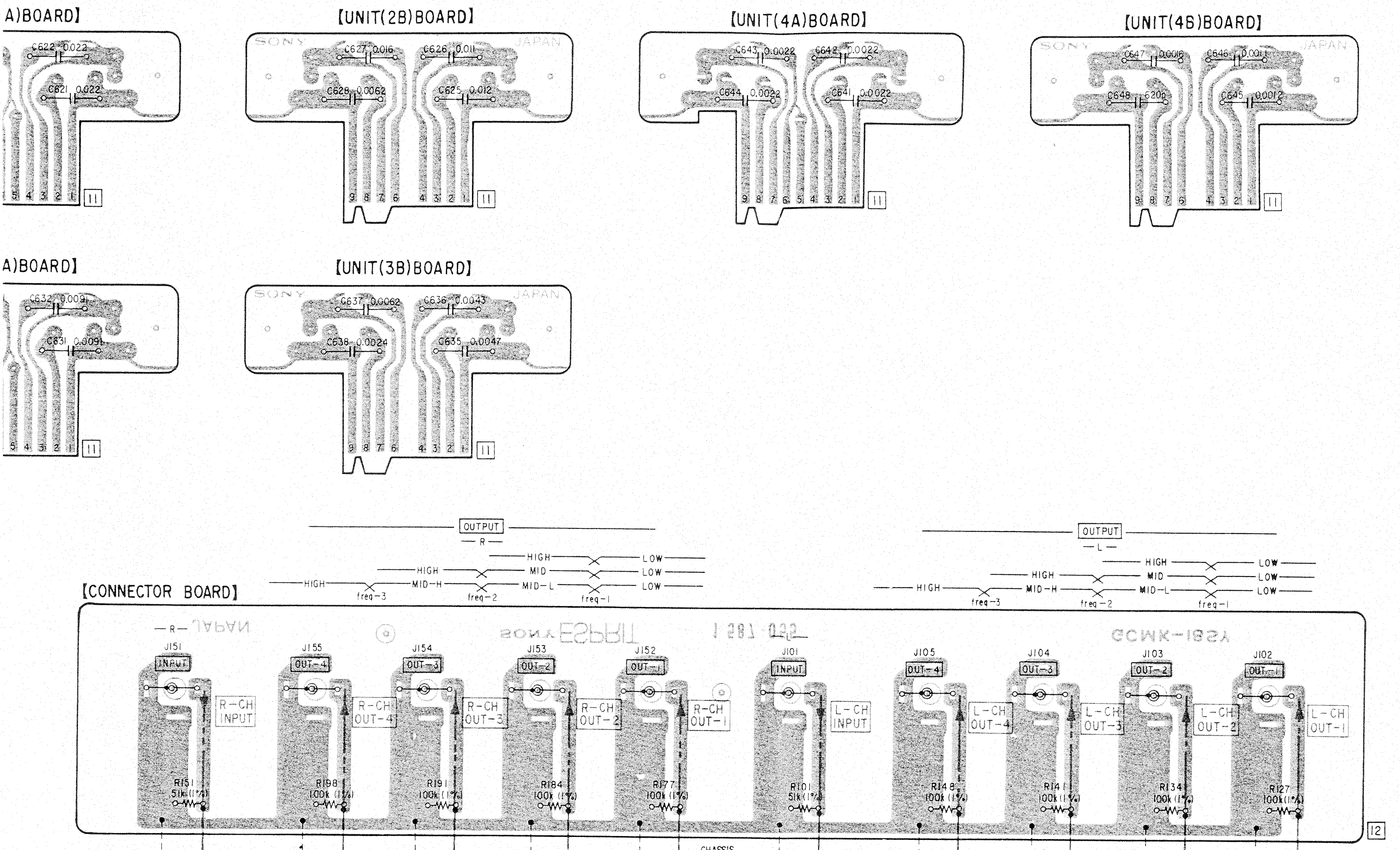

2SA884
2SA893
2SC1364
2SC1634
2SB740
E C B
2SA1027R
2SC634A
E C B
2SC1963
E C B
2SK42-3
G S D
2SK12
G S
2SA11
2SB734
2SC267
E C B
2SC945
S G D
2SB71
2SB72
2SD75
2SD76
B C E

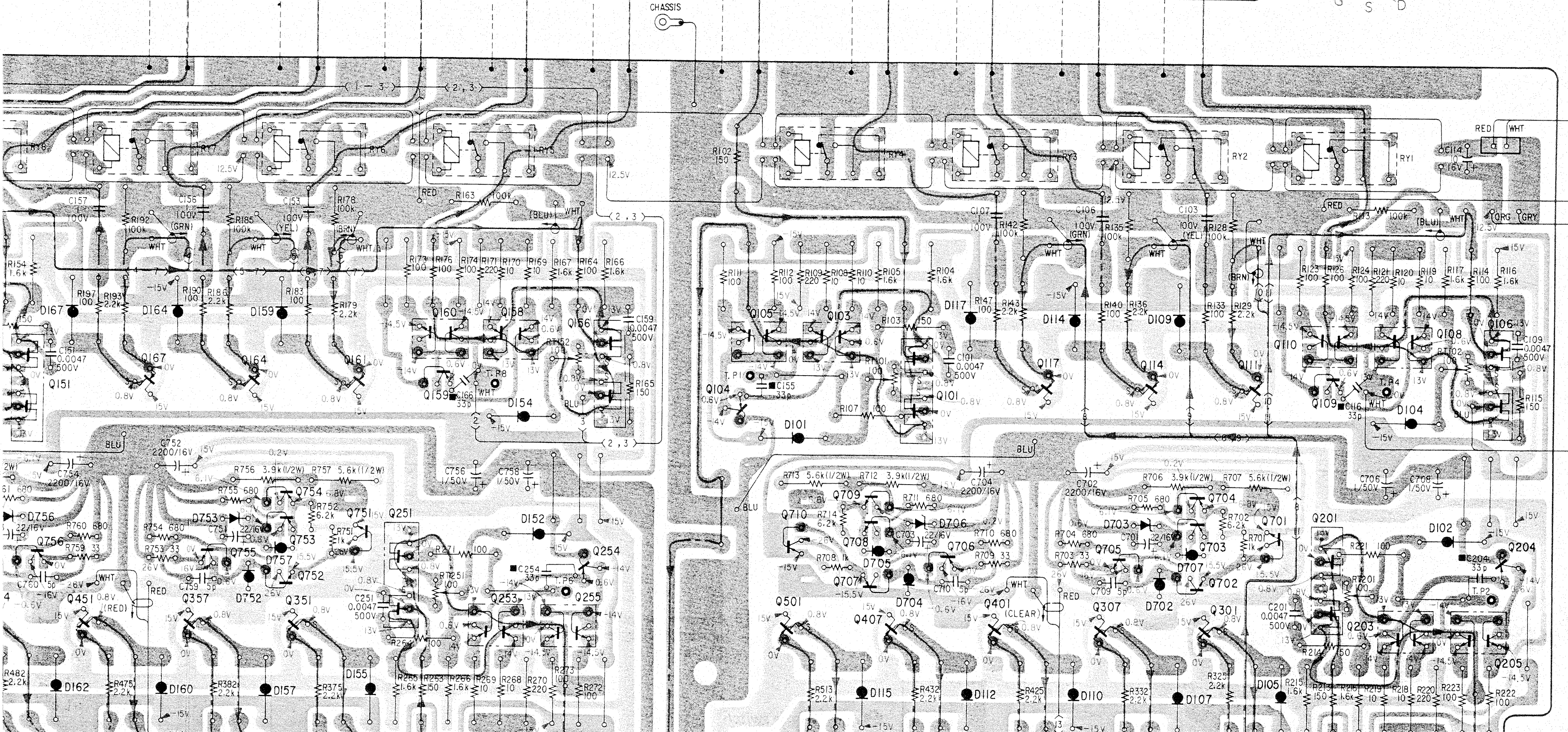
	167 164 159 117 114 109
155 153 105 103 160 158 110 108	
151 156 101 106 167 164 161 159 117 114 111 109	
154 104	154 104
	151 101
759 754 709 704	
758 753 708 703 760 751 710 701	756,753,706,703 152 102 755,757,705,707
756,755 706,705	
757 752 251 254 707, 702,201,204	754,752,704,702
551, 457,451,357,351 501,407,401,307,301 253,255,203,205	
	165,162,160,157,155 115, 112,110,107,105
	153
258, 260,208,210	166,163,161,158,156 116,113,111,108,106
256 206	
554,460,454,360,354,259 504,410,404,310,304,209	
	103
Q	D


R960 12k
R959 6.2k
R956 1M
605-095
— R —
11
S10
BASS BOOST
3.0
1.5
4.5
FLAT
6.0 dB
-1
-2
-3

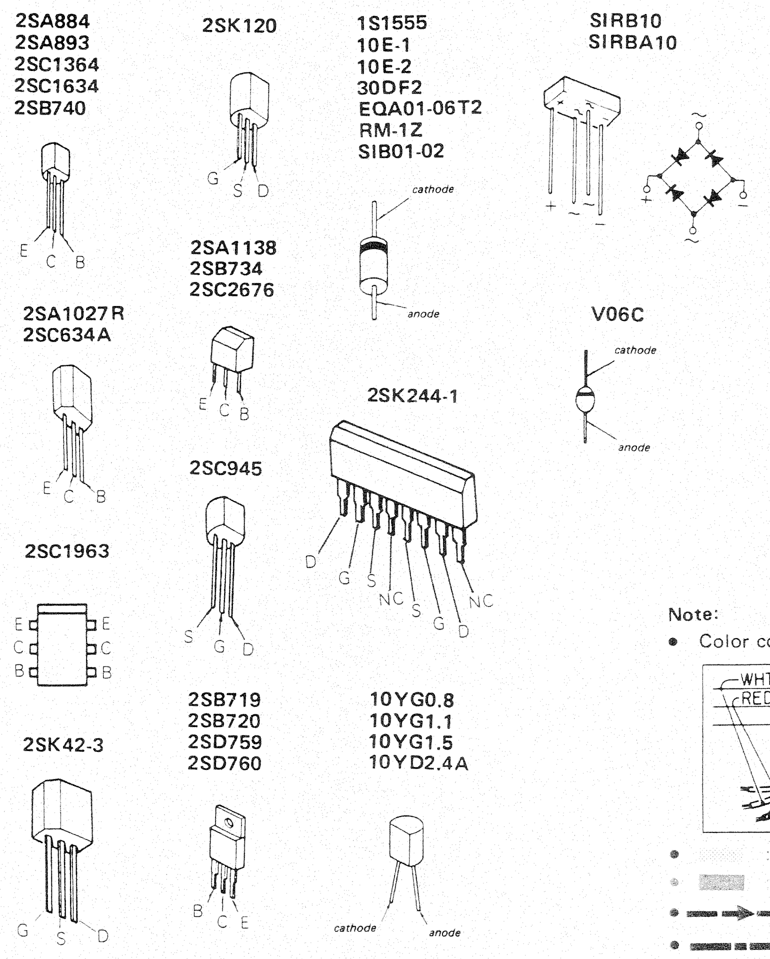

1-605-093
LEFT
RIGHT
S3
freq-3
S2
freq-2
S1
freq-1
S6
S5
S4
2WAY
3WAY
4WAY
FLAT
140Hz
280Hz
500Hz
5kHz
10kHz
SONY ESPRIT
(4) (GRN)
(3) (YEL)
(2) (BRN)
(1) (BLU)
RED
WHT
RT654 20k-S
RT653 20k-S
RT652 20k-S
RT651 20k-S
RT604 20k-S
RT603 20k-S
RT602 20k-S
RT601 20k-S
HIGH
MID HIGH
HIGH
MID LOW
MID
HIGH
LOW
LOW
LOW
freq-3
freq-2
freq-1
RIGHT ATTENUATOR
LEFT ATTENUATOR

Frequency marked ※1 means that it is measured when UNIT 1 is used.
Frequency marked ※2 means that it is measured when UNIT 2 is used.
Frequency marked ※3 means that it is measured when UNIT 3 is used.


A)BOARD]
[UNIT(2B)BOARD]
[UNIT(4A)BOARD]
[UNIT(4B)BOARD]
A)BOARD]
[UNIT(3B)BOARD]
OUTPUT
-R-
OUTPUT
-L-
HIGH
MID-H
MID-L
MID
LOW
freq-3
freq-2
freq-1
[CONNECTOR BOARD]
J151 INPUT
J155 OUT-4
J154 OUT-3
J153 OUT-2
J152 OUT-1
J101 INPUT
J105 OUT-4
J104 OUT-3
J103 OUT-2
J102 OUT-1
R-CH INPUT
R-CH OUT-4
R-CH OUT-3
R-CH OUT-2
R-CH OUT-1
L-CH INPUT
L-CH OUT-4
L-CH OUT-3
L-CH OUT-2
L-CH OUT-1
R151 51k(1%)
R198 100k(1%)
R191 100k(1%)
R184 100k(1%)
R177 100k(1%)
R101 51k(1%)
R148 100k(1%)
R141 100k(1%)
R134 100k(1%)
R127 100k(1%)
12

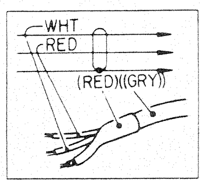

CHASSIS
RY1
RY2
RED
WHT
BLU
GRN
YEL
14
2, 3
1, 3
15V
-15V

- **Semiconductor Lead Layouts**

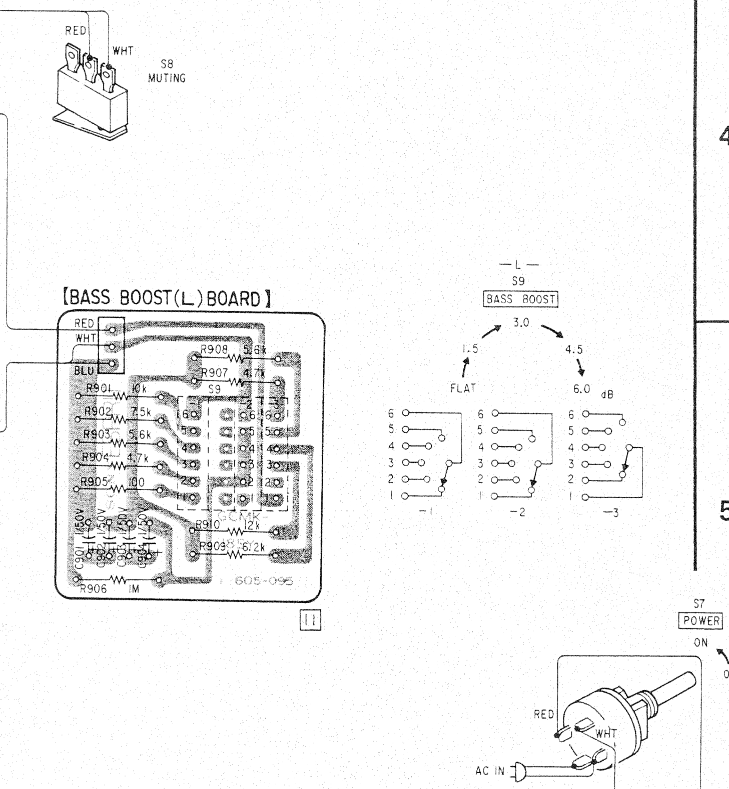

2SA884
2SA893
2SC1364
2SC1634
2SB740
E C B
2SK120
G S D
1S1555
10E-1
10E-2
30DF2
EQA01-06T2
RM-1Z
SIB01-02
cathode
anode
SIRB10
SIRBA10
2SA1138
2SB734
2SC2676
E C B
2SA1027R
2SC634A
E C B
V06C
cathode
anode
2SK244-1
D G S NC S G D NC
2SC945
S G D
2SC1963
E C B
E C B
2SB719
2SB720
2SD759
2SD760
B C E
10YG0.8
10YG1.1
10YG1.5
10YD2.4A
cathode
anode
2SK42-3
G S D

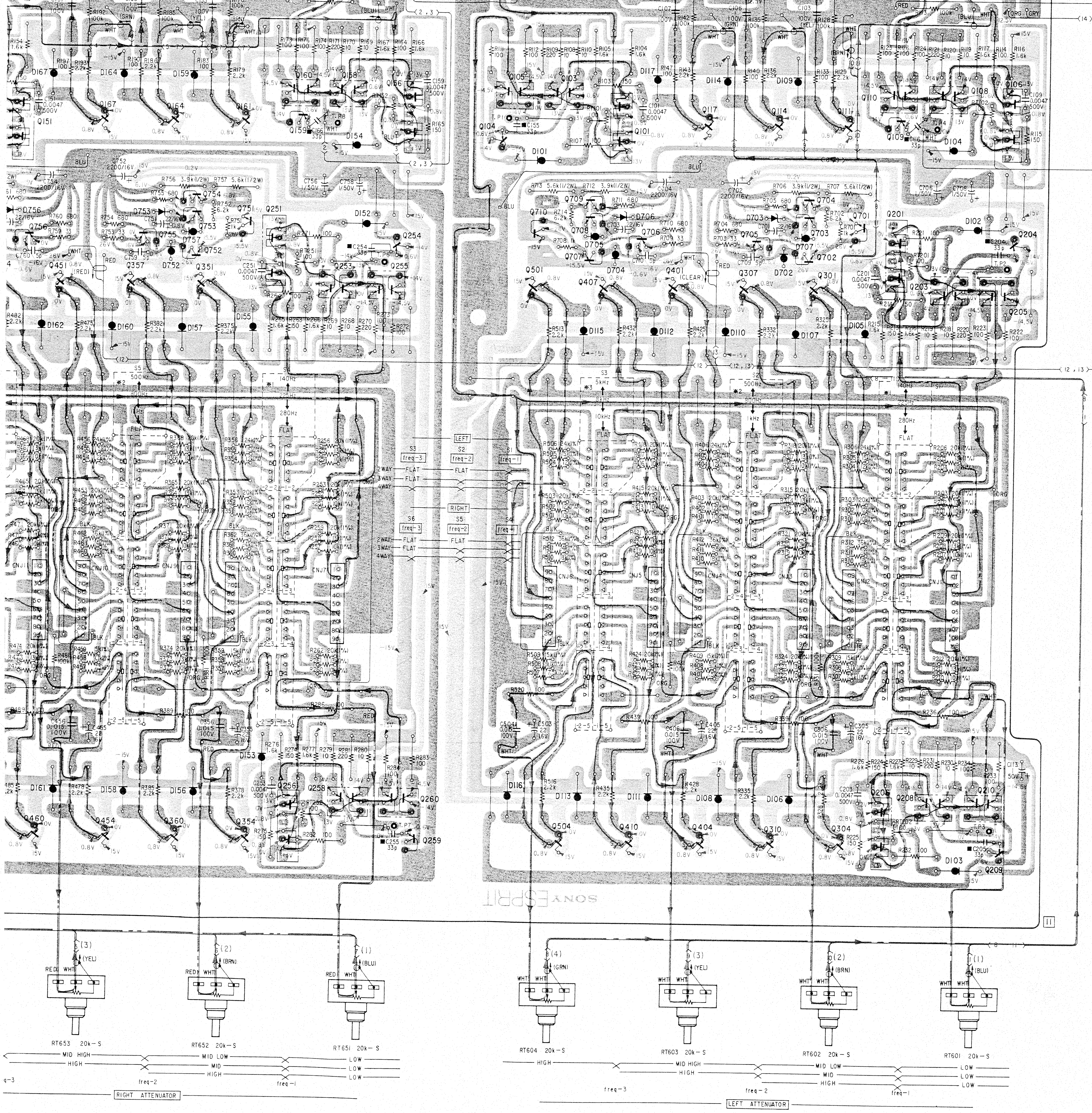
Note:

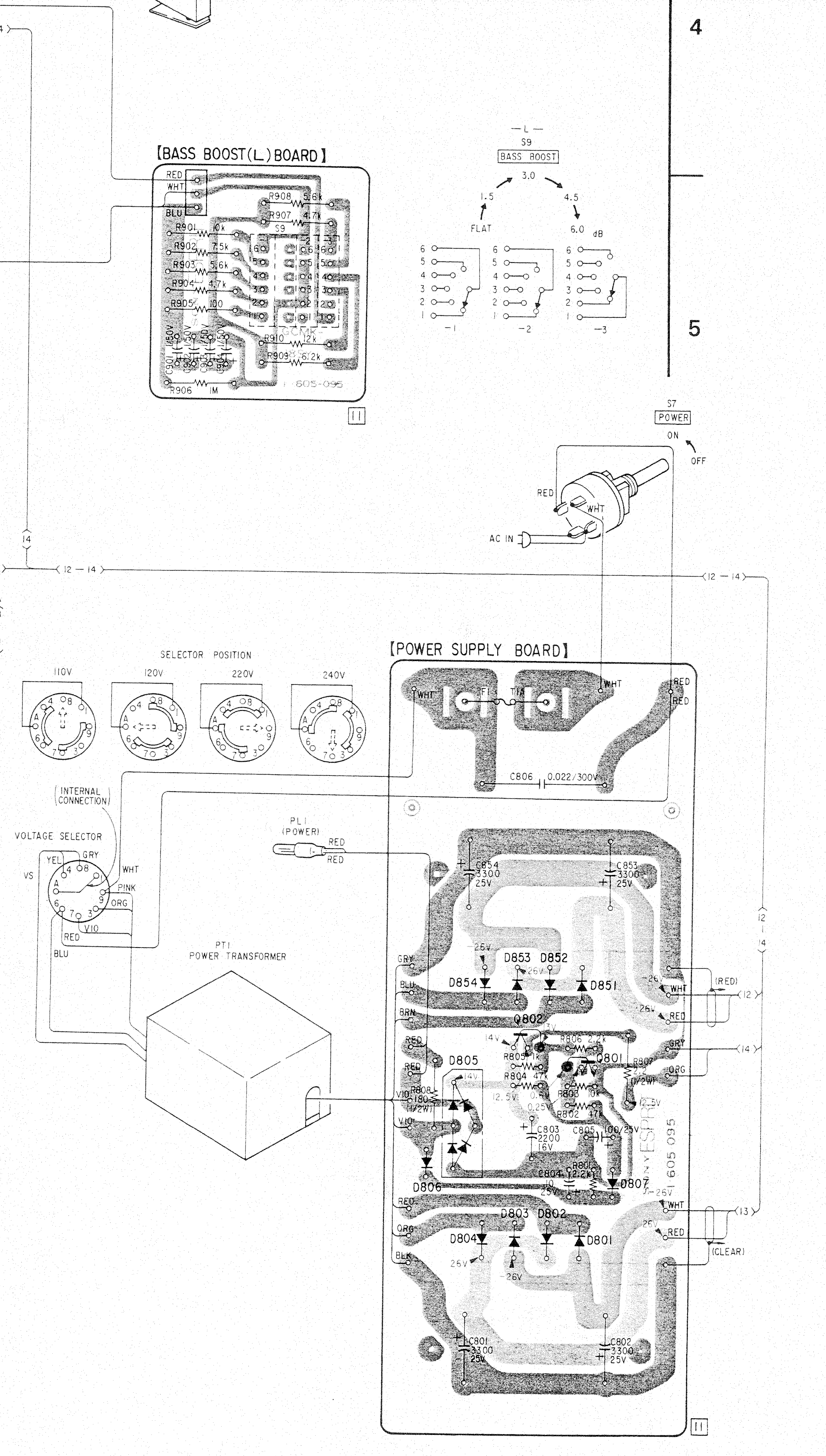
- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)(GRY)

- ▨ : B+ pattern
- ▨ : B- pattern
- ➡ : signal path
- ➡ : L-CH signal path
- ➡ : R-CH signal path


RED
WHT
S8
MUTING
[BASS BOOST(L)BOARD]
BLU
S9
R908
R907
R901
R902
R903
R904
R905
R910
R903
R906 1M
11
-L-
S9
BASS BOOST
3.0
1.5
4.5
FLAT
6.0 dB
-1
-2
-3
S7
POWER
ON
OFF
RED
WHT
AC IN

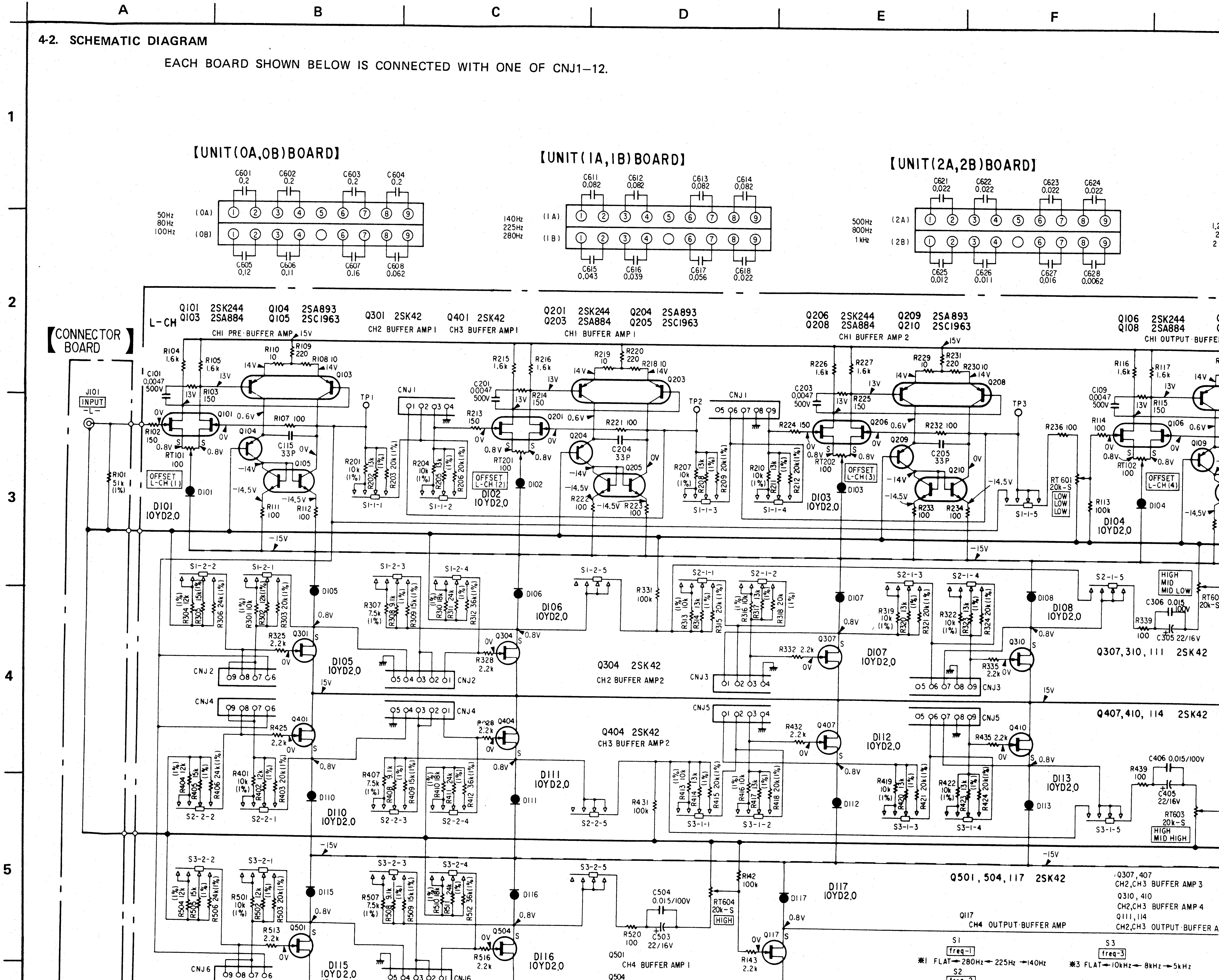

D167
D164
D159
Q151
Q167
Q164
Q161
Q160
Q158
Q156
Q159
D154
Q105
Q103
Q104
D101
Q101
D117
D114
D109
Q117
Q114
Q111
Q110
Q108
Q106
Q109
D104
D756
D753
D755
D757
Q754
Q753
Q752
Q756
Q251
D152
Q254
Q253
Q255
Q451
Q357
D752
Q351
D162
D160
D157
D155
Q710
Q709
Q708
D706
Q706
D705
Q707
D704
Q401
Q703
Q705
Q704
Q702
D703
D707
Q701
Q201
D102
Q204
Q501
Q407
Q307
D702
Q301
Q203
Q205
D115
D112
D110
D107
D105
S5
500Hz
140Hz
280Hz
FLAT
S3
5kHz
8kHz
10kHz
1kHz
LEFT
RIGHT
S2
freq-2
S1
freq-1
S3
freq-3
S6
S5
S4
2WAY
3WAY
4WAY
FLAT
CNJ11
CNJ10
CNJ9
CNJ8
CNJ7
CNJ6
CNJ5
CNJ4
CNJ3
CNJ2
CNJ1
D161
D158
D156
D153
Q256
Q258
Q260
Q259
Q460
Q454
Q360
Q354
D116
D113
D111
D108
D106
Q504
Q410
Q404
Q310
Q304
Q208
Q210
Q209
D103
SONY ESPRIT
(3) (YEL)
(2) (BRN)
(1) (BLU)
(4) (GRN)
RT653 20k-S
RT652 20k-S
RT651 20k-S
RT604 20k-S
RT603 20k-S
RT602 20k-S
RT601 20k-S
MID HIGH
HIGH
MID LOW
LOW
MID
freq-3
freq-2
freq-1
RIGHT ATTENUATOR
LEFT ATTENUATOR

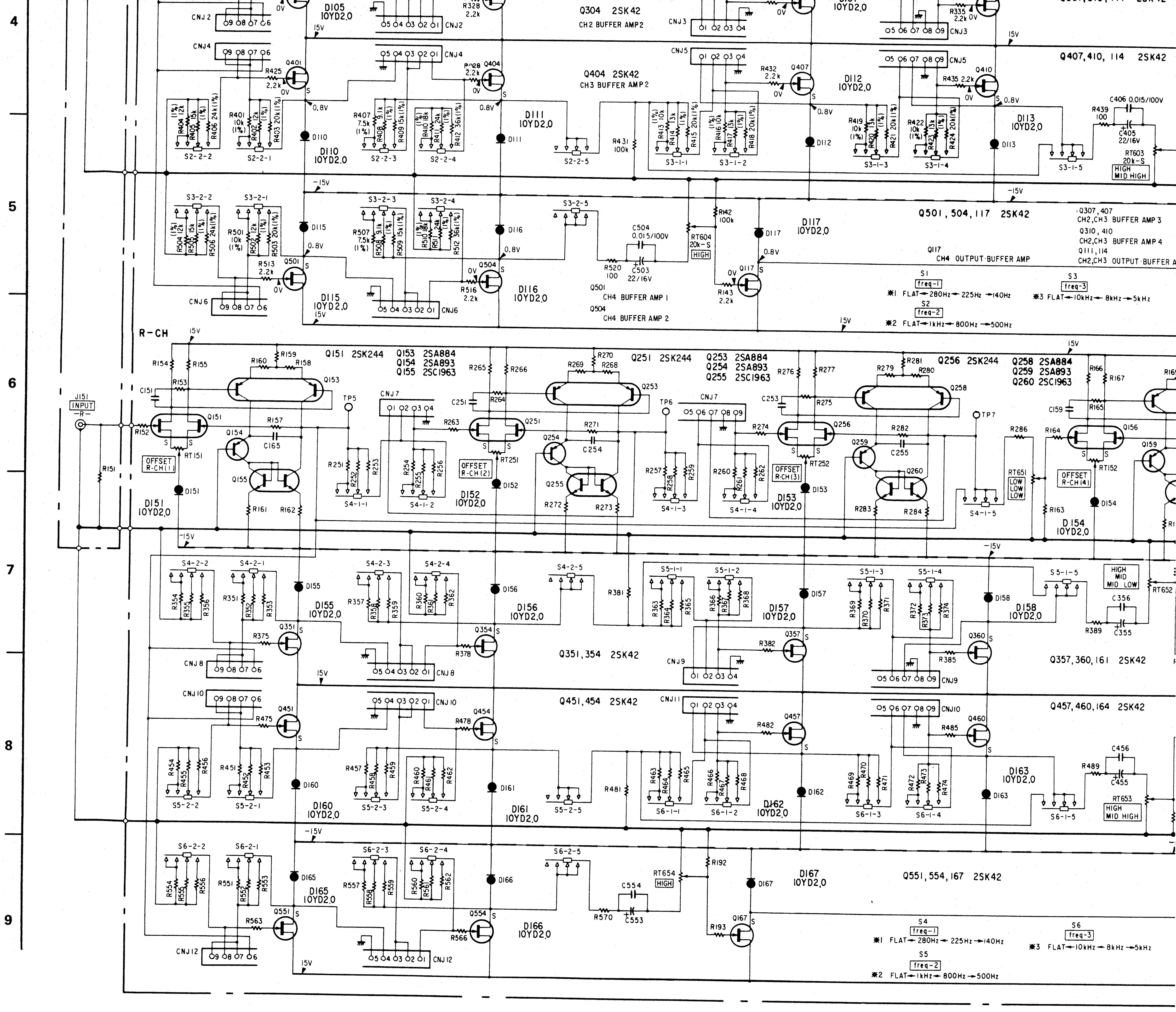

4
5
[BASS BOOST(L) BOARD]
R908 5.6k
R907 4.7k
R901 10k
R902 7.5k
R903 5.6k
R904 4.7k
R905 3.3k
R910 12k
R909 6.2k
R906 1M
1-605-095
-L-
S9
BASS BOOST
3.0
1.5
4.5
FLAT
6.0 dB
-1
-2
-3
S7
POWER
ON
OFF
RED
WHT
AC IN
SELECTOR POSITION
110V
120V
220V
240V
INTERNAL CONNECTION
VOLTAGE SELECTOR
PL1 (POWER)
PT1 POWER TRANSFORMER
[POWER SUPPLY BOARD]
C806 0.022/300V
C854 3300 25V
C853 3300 25V
D853
D852
D854
D851
Q802
D805
Q801
D806
D807
D803
D802
D804
D801
C801 3300 25V
C802 3300 25V
1-605-095

Q	802 801
D	854 853 852 851 806 805 807 804 803 802 801

4-2. SCHEMATIC DIAGRAM

EACH BOARD SHOWN BELOW IS CONNECTED WITH ONE OF CNJ1–12.


A
B
C
D
E
F
1
2
3
4
5
【UNIT(0A,0B)BOARD】
50Hz 80Hz 100Hz
(0A)
(0B)
C601 0.2
C602 0.2
C603 0.2
C604 0.2
C605 0.12
C606 0.11
C607 0.16
C608 0.062
【UNIT(1A,1B)BOARD】
140Hz 225Hz 280Hz
(1A)
(1B)
C611 0.082
C612 0.082
C613 0.082
C614 0.082
C615 0.043
C616 0.039
C617 0.056
C618 0.022
【UNIT(2A,2B)BOARD】
500Hz 800Hz 1kHz
(2A)
(2B)
C621 0.022
C622 0.022
C623 0.022
C624 0.022
C625 0.012
C626 0.011
C627 0.016
C628 0.0062
【CONNECTOR BOARD】
L-CH
J101 INPUT -L-
Q101 2SK244
Q103 2SA884
Q104 2SA893
Q105 2SC1963
CH1 PRE-BUFFER AMP
Q301 2SK42
CH2 BUFFER AMP 1
Q401 2SK42
CH3 BUFFER AMP 1
Q201 2SK244
Q203 2SA884
Q204 2SA893
Q205 2SC1963
CH1 BUFFER AMP 1
Q206 2SK244
Q208 2SA884
Q209 2SA893
Q210 2SC1963
CH1 BUFFER AMP 2
Q106 2SK244
Q108 2SA884
CH1 OUTPUT-BUFFER
OFFSET L-CH (1)
OFFSET L-CH (2)
OFFSET L-CH (3)
OFFSET L-CH (4)
TP1
TP2
TP3
CNJ1
D101 10YD2.0
D102 10YD2.0
D103 10YD2.0
D104 10YD2.0
D105 10YD2.0
D106 10YD2.0
D107 10YD2.0
D108 10YD2.0
D110 10YD2.0
D111 10YD2.0
D112 10YD2.0
D113 10YD2.0
D115 10YD2.0
D116 10YD2.0
D117 10YD2.0
RT601 20k-S LOW LOW LOW
RT602 20k-S
RT603 20k-S HIGH MID HIGH
RT604 20k-S HIGH
HIGH MID MID LOW
C306 0.015/100V
C305 22/16V
C406 0.015/100V
C405 22/16V
C504 0.015/100V
C503 22/16V
S1-1-1
S1-1-2
S1-1-3
S1-1-4
S1-1-5
S1-2-1
S1-2-2
S1-2-3
S1-2-4
S1-2-5
S2-1-1
S2-1-2
S2-1-3
S2-1-4
S2-1-5
S2-2-1
S2-2-2
S2-2-3
S2-2-4
S2-2-5
S3-1-1
S3-1-2
S3-1-3
S3-1-4
S3-1-5
S3-2-1
S3-2-2
S3-2-3
S3-2-4
S3-2-5
CNJ2
CNJ3
CNJ4
CNJ5
CNJ6
Q304 2SK42
CH2 BUFFER AMP2
Q404 2SK42
CH3 BUFFER AMP2
Q307, 310, 111 2SK42
Q407, 410, 114 2SK42
Q501, 504, 117 2SK42
Q117
CH4 OUTPUT-BUFFER AMP
Q501
CH4 BUFFER AMP 1
Q504
Q307, 407
CH2, CH3 BUFFER AMP 3
Q310, 410
CH2, CH3 BUFFER AMP 4
Q111, 114
CH2, CH3 OUTPUT-BUFFER A
15V
-15V
14V
13V
0.6V
0.8V
0V
-14V
-14.5V
S1
freq-1
✱1 FLAT→280Hz→225Hz→140Hz
S2
S3
freq-3
✱3 FLAT→10kHz→8kHz→5kHz

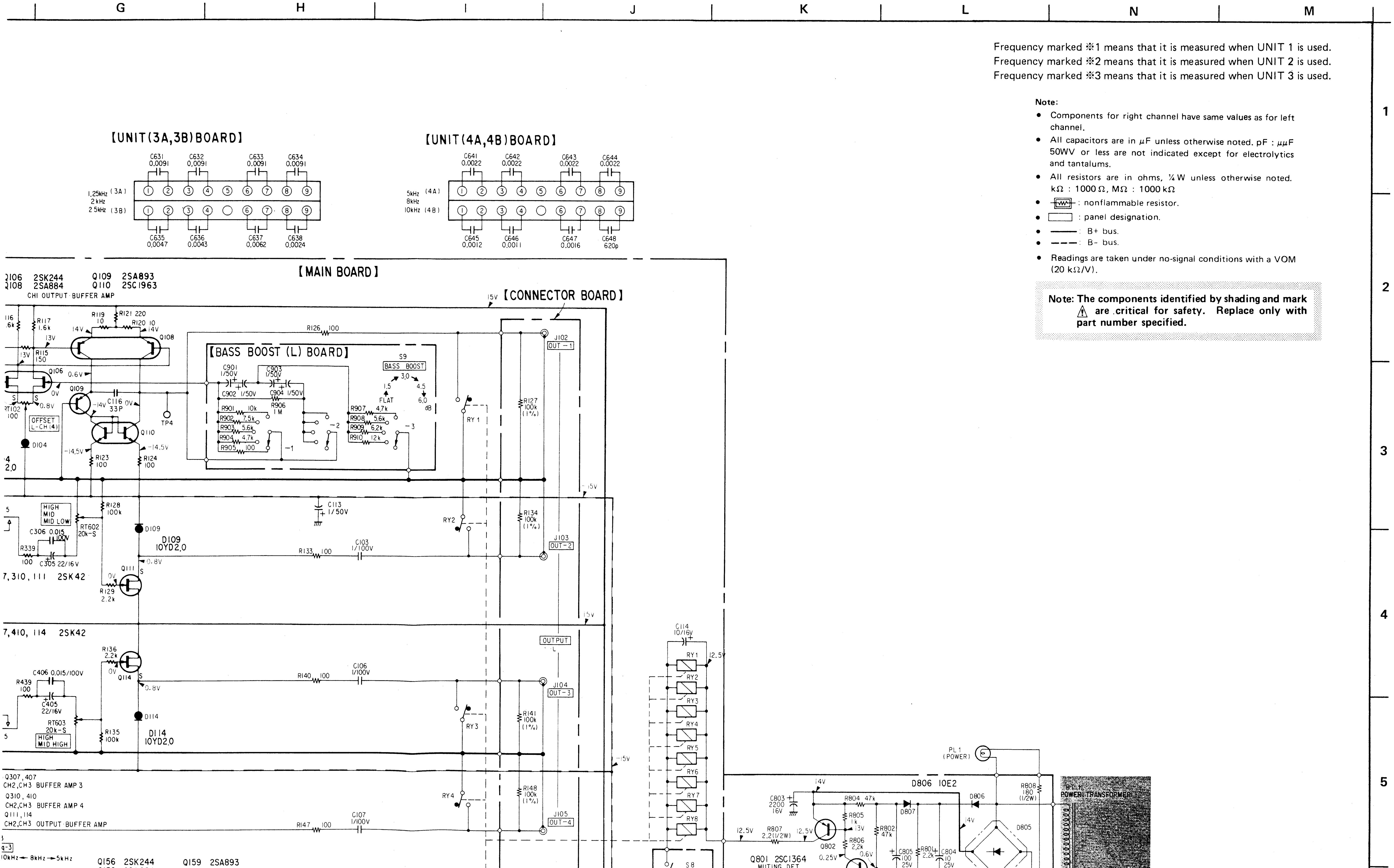

4
5
6
7
8
9
Q304 2SK42
CH2 BUFFER AMP 2
Q404 2SK42
CH3 BUFFER AMP 2
Q407, 410, 114 2SK42
Q501, 504, 117 2SK42
Q307, 407
CH2, CH3 BUFFER AMP 3
Q310, 410
CH2, CH3 BUFFER AMP 4
Q111, 114
CH2, CH3 OUTPUT BUFFER A
Q117
CH4 OUTPUT BUFFER AMP
Q501
CH4 BUFFER AMP 1
Q504
CH4 BUFFER AMP 2
S1
freq-1
※1 FLAT ← 280Hz ← 225Hz → 140Hz
S2
freq-2
※2 FLAT ← 1kHz ← 800Hz → 500Hz
S3
freq-3
※3 FLAT ← 10kHz ← 8kHz → 5kHz
R-CH
J151
INPUT
-R-
OFFSET R-CH(1)
OFFSET R-CH(2)
OFFSET R-CH(3)
OFFSET R-CH(4)
Q151 2SK244
Q153 2SA884
Q154 2SA893
Q155 2SC1963
Q251 2SK244
Q253 2SA884
Q254 2SA893
Q255 2SC1963
Q256 2SK244
Q258 2SA884
Q259 2SA893
Q260 2SC1963
Q351, 354 2SK42
Q357, 360, 161 2SK42
Q451, 454 2SK42
Q457, 460, 164 2SK42
Q551, 554, 167 2SK42
D110 10YD2.0
D111 10YD2.0
D112 10YD2.0
D113 10YD2.0
D115 10YD2.0
D116 10YD2.0
D117 10YD2.0
D151 10YD2.0
D152 10YD2.0
D153 10YD2.0
D154 10YD2.0
D155 10YD2.0
D156 10YD2.0
D157 10YD2.0
D158 10YD2.0
D160 10YD2.0
D161 10YD2.0
D162 10YD2.0
D163 10YD2.0
D165 10YD2.0
D166 10YD2.0
D167 10YD2.0
C406 0.015/100V
C405 22/16V
RT603 20k-S
HIGH MID HIGH
C504 0.015/100V
C503 22/16V
RT604 20k-S
HIGH
RT651
LOW LOW LOW
RT652
HIGH MID MID LOW
RT653
HIGH MID HIGH
RT654
HIGH
S4
freq-1
※1 FLAT ← 280Hz ← 225Hz → 140Hz
S5
freq-2
※2 FLAT ← 1kHz ← 800Hz → 500Hz
S6
freq-3
※3 FLAT ← 10kHz ← 8kHz → 5kHz
15V
-15V
0.8V
0V

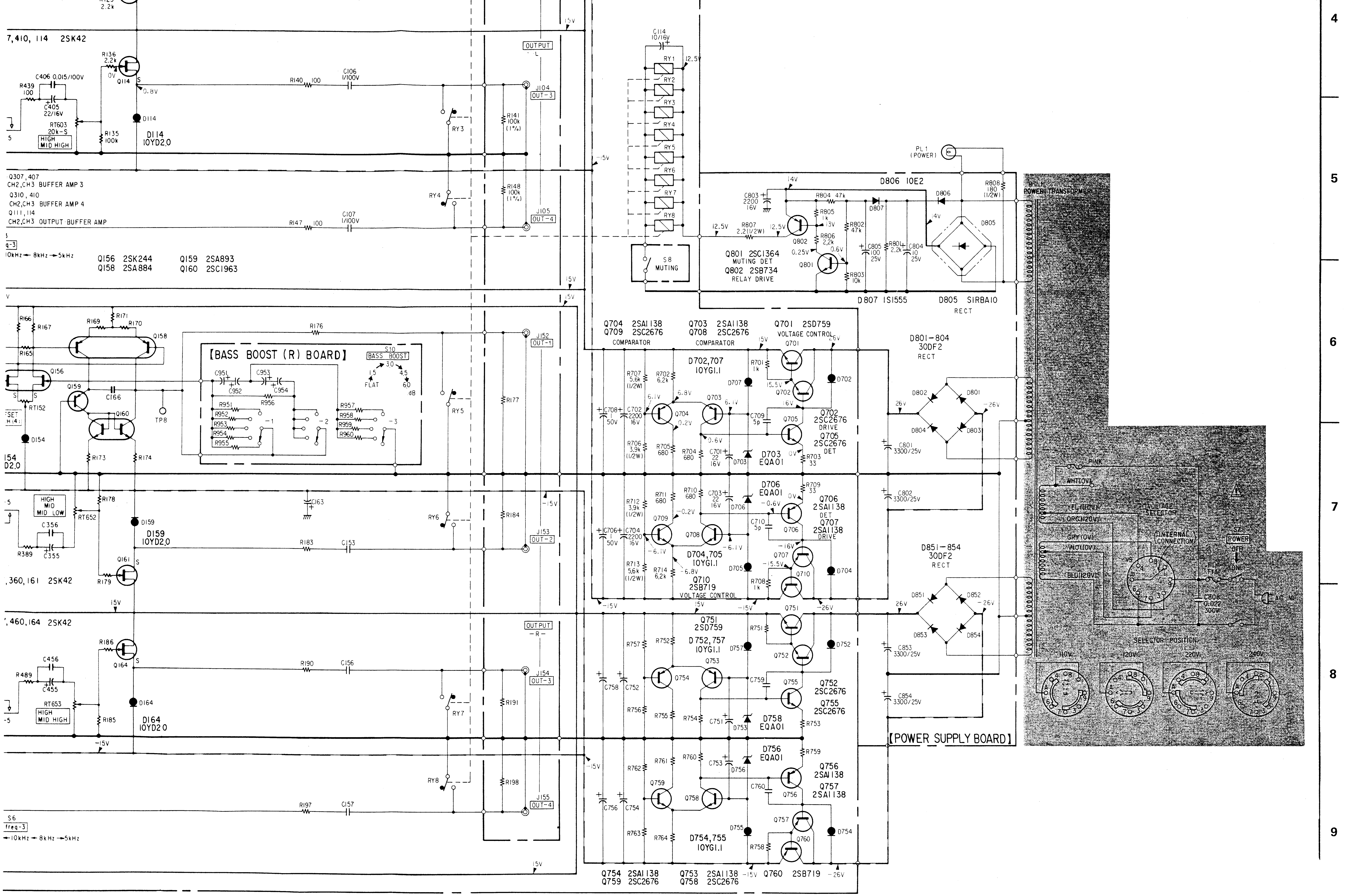
Frequency marked ※1 means that it is measured when UNIT 1 is used.
Frequency marked ※2 means that it is measured when UNIT 2 is used.
Frequency marked ※3 means that it is measured when UNIT 3 is used.

Note:

- Components for right channel have same values as for left channel.
- All capacitors are in μF unless otherwise noted. pF : $\mu\mu$F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, ¼ W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- ▭ : nonflammable resistor.
- ▭ : panel designation.
- ——— : B+ bus.
- – – – : B- bus.
- Readings are taken under no-signal conditions with a VOM (20 kΩ/V).

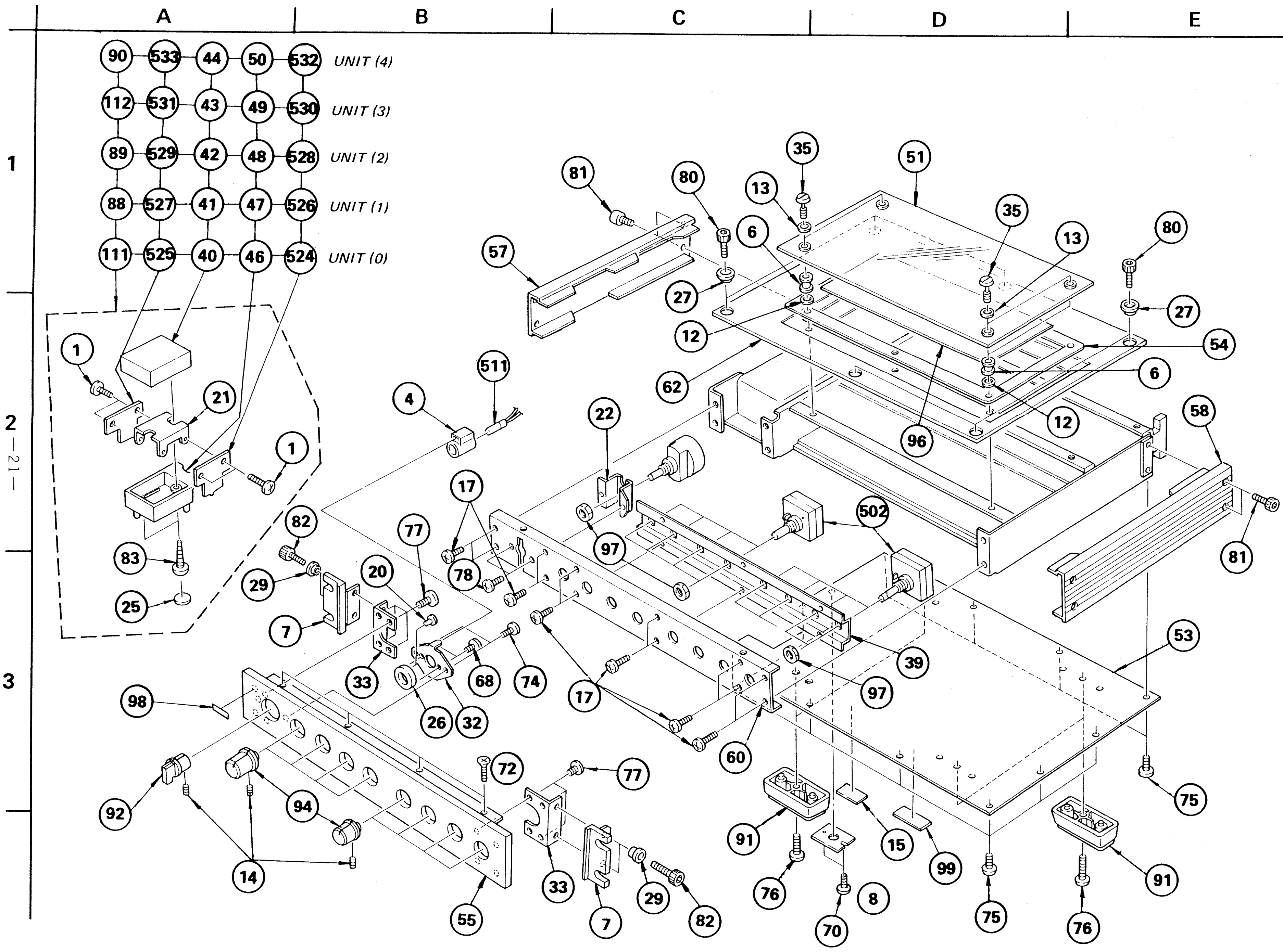
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.


G
H
I
J
K
L
N
M
1
2
3
4
5
【UNIT(3A,3B)BOARD】
C631 0.0091
C632 0.0091
C633 0.0091
C634 0.0091
1.25kHz (3A)
2kHz
2.5kHz (3B)
C635 0.0047
C636 0.0043
C637 0.0062
C638 0.0024
【UNIT(4A,4B)BOARD】
C641 0.0022
C642 0.0022
C643 0.0022
C644 0.0022
5kHz (4A)
8kHz
10kHz (4B)
C645 0.0012
C646 0.0011
C647 0.0016
C648 620p
【MAIN BOARD】
Q106 2SK244
Q108 2SA884
Q109 2SA893
Q110 2SC1963
CH1 OUTPUT BUFFER AMP
R117 1.6k
R119 10
R121 220
R120 10
14V
13V
R115 150
Q106
0.6V
Q109
-14V
C116 33P
0V
TP4
Q110
-14.5V
R123 100
R124 100
OFFSET L-CH(4)
D104
RT102 100
【CONNECTOR BOARD】
15V
R126 100
J102 OUT-1
【BASS BOOST (L) BOARD】
C901 1/50V
C903 1/50V
C902 1/50V
C904 1/50V
R906 1M
R901 10k
R902 7.5k
R903 5.6k
R904 4.7k
R905 100
R907 4.7k
R908 5.6k
R909 6.2k
R910 12k
S9 BASS BOOST
3.0
1.5
4.5
FLAT
6.0
dB
-1
-2
-3
RY1
R127 100k (1%)
-15V
C113 1/50V
HIGH MID MID LOW
R128 100k
RT602 20k-S
C306 0.015/100V
R339 100
C305 22/16V
D109
D109 10YD2.0
0.8V
Q111
R129 2.2k
Q307,310,111 2SK42
R133 100
C103 1/100V
RY2
R134 100k (1%)
J103 OUT-2
Q407,410,114 2SK42
15V
OUTPUT L
R136 2.2k
Q114
C406 0.015/100V
R439 100
C405 22/16V
RT603 20k-S
HIGH MID HIGH
R135 100k
D114
D114 10YD2.0
R140 100
C106 1/100V
RY3
R141 100k (1%)
J104 OUT-3
Q307,407 CH2,CH3 BUFFER AMP 3
Q310,410 CH2,CH3 BUFFER AMP 4
Q111,114 CH2,CH3 OUTPUT BUFFER AMP
R147 100
C107 1/100V
RY4
R148 100k (1%)
J105 OUT-4
10kHz→8kHz→5kHz
Q156 2SK244
Q159 2SA893
C114 10/16V
RY1
RY2
RY3
RY4
RY5
RY6
RY7
RY8
12.5V
S8
PL1 (POWER)
D806 10E2
14V
C803 2200 16V
R804 47k
R805 1k
13V
D807
R802 47k
R807 2.2(1/2W)
12.5V
Q802
R806 2.2k
0.6V
Q801 2SC1364 MUTING DET
0.25V
C805 100 25V
R801 2.2k
C804 10 25V
R808 180 (1/2W)
D806
D805
PT1 POWER TRANSFORMER


R125 2.2k
7,410, 114 2SK42
R136 2.2k
Q114
C406 0.015/100V
R439 100
C405 22/16V
RT603 20k-S
HIGH MID HIGH
R135 100k
D114 10YD2,0
R140 100
C106 1/100V
OUTPUT -L-
J104 OUT-3
R141 100k (1%)
RY3
Q307,407 CH2,CH3 BUFFER AMP 3
Q310,410 CH2,CH3 BUFFER AMP 4
Q111,114 CH2,CH3 OUTPUT BUFFER AMP
R148 100k (1%)
RY4
J105 OUT-4
R147 100
C107 1/100V
10kHz→8kHz→5kHz
Q156 2SK244
Q158 2SA884
Q159 2SA893
Q160 2SC1963
R166
R167
R169
R171
R170
Q158
R165
Q156
Q159
C166
Q160
RT152
D154
TP8
R173
R174
R176
【BASS BOOST (R) BOARD】
S10 BASS BOOST
FLAT
15 30 45 60 dB
C951 C952 C953 C954
R956
R951 R952 R953 R954 R955
R957 R958 R959 R960
J152 OUT-1
R177
RY5
HIGH MID LOW
RT652
R178
C356
R389
C355
D159 10YD2,0
C163
R183
C153
J153 OUT-2
R184
RY6
Q161
R179
,360,161 2SK42
,460,164 2SK42
R186
Q164
C456
R489
C455
RT653
HIGH MID HIGH
R185
D164 10YD20
R190
C156
OUTPUT -R-
J154 OUT-3
R191
RY7
RY8
R198
R197
C157
J155 OUT-4
S6 freq-3
10kHz→8kHz→5kHz
15V
-15V
C114 10/16V
RY1 RY2 RY3 RY4 RY5 RY6 RY7 RY8
12.5V
S8 MUTING
PL1 (POWER)
D806 10E2
C803 2200 16V
R804 47k
R805 1k
R806 2.2k
R807 2.2(1/2W)
R802 47k
R803 10k
C805 100 25V
R801 2.2k
C804 10 25V
R808 180 (1/2W)
D807
D805
Q801 2SC1364 MUTING DET
Q802 2SB734 RELAY DRIVE
D807 1S1555
D805 SIRBA10 RECT
PT1 POWER TRANSFORMER
Q704 2SA1138
Q709 2SC2676
COMPARATOR
Q703 2SA1138
Q708 2SC2676
COMPARATOR
Q701 2SD759 VOLTAGE CONTROL
D702,707 10YG1.1
R707 5.6k (1/2W)
R702 6.2k
R701 1k
C708 1 50V
C702 2200 16V
Q704
Q703
C709 5p
Q702 2SC2676 DRIVE
Q705 2SC2676 DET
R706 3.9k (1/2W)
R705 680
R704 680
C701 22 16V
D703 EQA01
R703 33
D801-804 30DF2 RECT
C801 3300/25V
C802 3300/25V
R712 3.9k (1/2W)
R711 680
R710 680
C703 22 16V
D706 EQA01
R709 33
Q706 2SA1138 DET
Q707 2SA1138 DRIVE
C706 1 50V
C704 2200 16V
Q709
Q708
C710 5p
D704,705 10YG1.1
R713 5.6k (1/2W)
R714 6.2k
R708 1k
Q710 2SB719 VOLTAGE CONTROL
D851-854 30DF2 RECT
PINK
WHT(0V)
YEL(110V)
ORG(120V)
GRY(0V)
VIO(110V)
BLU(120V)
VOLTAGE SELECTOR
INTERNAL CONNECTION
POWER OFF ON
C808 0.022 300V
AC IN
SELECTOR POSITION
110V 120V 220V 240V
Q751 2SD759
D752,757 10YG1.1
R757 R752 R751
Q753 Q754
C758 C752
C759
Q752 2SC2676
Q755 2SC2676
C853 3300/25V
C854 3300/25V
R756 R755 R754
C751
D753
D758 EQA01
R753
【POWER SUPPLY BOARD】
D756 EQA01
R759
R761 R760
C753
R762
Q756 2SA1138
Q757 2SA1138
C760
Q759 Q758
C756 C754
R763 R764
D754,755 10YG1.1
R758
Q760
D754 D755
Q754 2SA1138
Q759 2SC2676
Q753 2SA1138
Q758 2SC2676
Q760 2SB719
-26V
26V
4 5 6 7 8 9

SECTION 5
EXPLODED VIEWS AND PARTS LIST

5-1.


A
B
C
D
E
1
2
3
90
533
44
50
532
UNIT (4)
112
531
43
49
530
UNIT (3)
89
529
42
48
528
UNIT (2)
88
527
41
47
526
UNIT (1)
111
525
40
46
524
UNIT (0)
1
21
1
83
25
82
29
7
20
77
33
26
32
68
74
17
78
4
511
22
97
502
39
97
60
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13
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76
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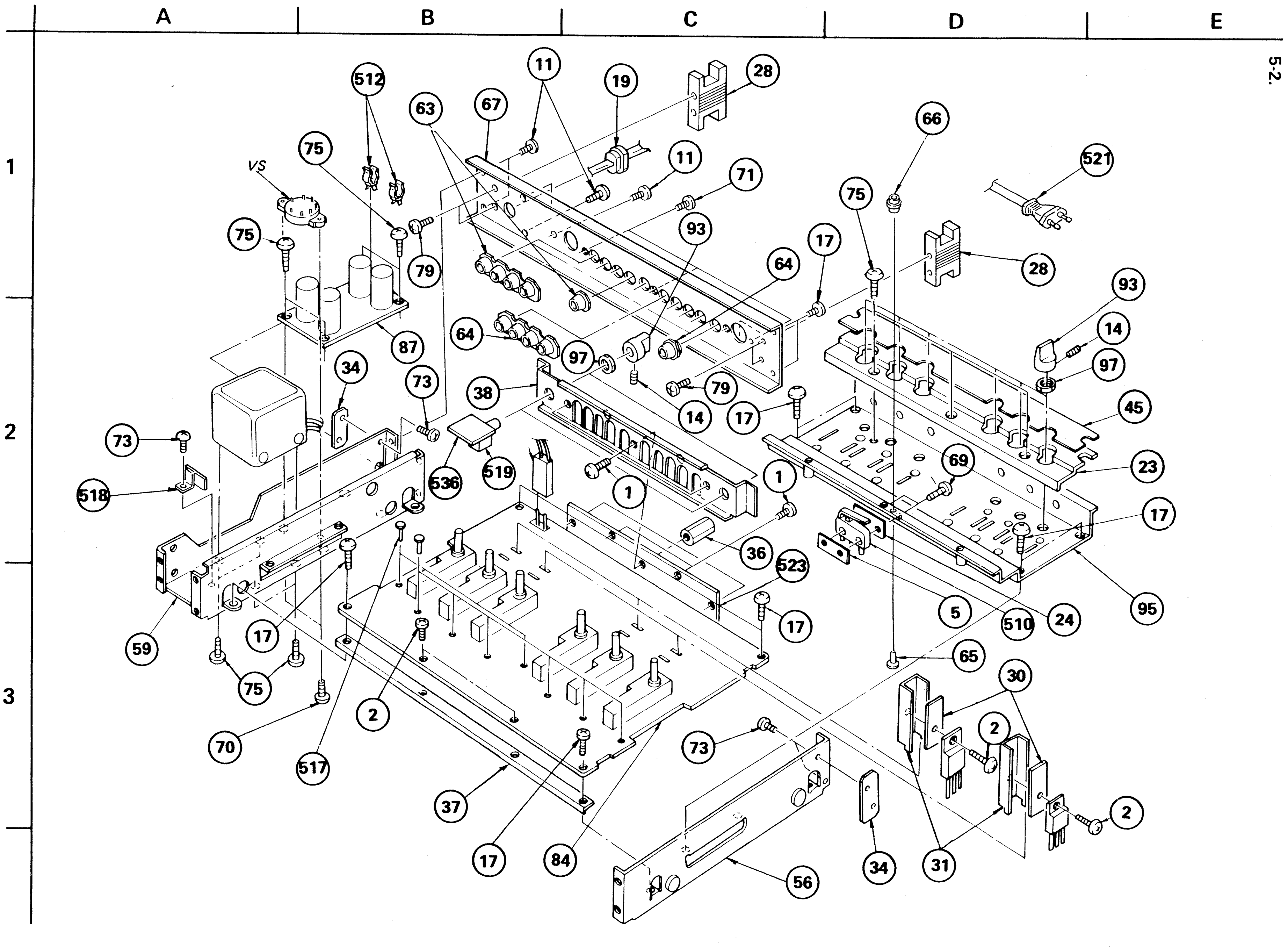
91
76

5-2.


A
B
C
D
E
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2
3
512
75
VS
75
79
63
67
11
19
28
11
71
93
64
17
66
75
521
28
93
14
97
45
23
87
34
73
64
97
38
14
79
17
73
518
536
519
1
1
69
17
36
523
5
510
24
95
59
17
75
70
2
517
17
37
17
84
73
56
34
31
30
2
2
65

GENERAL SECTION

No.	Part No.	Description
1	2-259-121-00	SCREW, TR
2	2-259-121-11	SCREW, TR
3	3-509-140-00	HOLDER, WIRE
4	3-534-276-11	HOLDER, LAMP
5	3-537-243-00	NUT, PLATE
6	3-556-909-00	RUBBER, CASSETTE GLASS
7	3-565-754-21	PANEL, SIDE
8	♠;3-565-791-00	SCALE, DIAL, VOLTAGE SELECTION
9	....	
10	....	
11	3-701-429-21	SCREW, +B 3X5, PAWL
12	3-701-438-21	WASHER
13	3-701-440-11	WASHER, 3.5
14	3-701-510-00	SET SCREW, DOUBLE POINT 4X4
15	3-703-043-21	(UK)...LABEL, CAUTION, MAIN
16	....	
17	3-703-108-21	SCREW +BV 3X6, S TIGHT
18	....	
19	4-849-786-00	STOPPER, CORD
20	4-852-925-00	LENS, POWER LAMP
21	4-854-402-00	BRACKET, UNIT
22	♠;4-854-407-00	BRACKET, PSW
23	4-854-420-00	COVER, SWITCH
24	4-854-439-00	SPACER
25	4-854-442-00	SHEET, MASK
26	4-870-204-00	ORNAMENT, SWITCH (B)
27	4-870-210-00	RING, PANEL RETAINER
28	4-870-213-00	BLOCK, GUARD
29	4-870-232-00	WASHER, SUB PANEL
30	4-870-272-00	HEAT SINK
31	♠;4-870-273-00	HEAT SINK (E)
32	♠;4-876-601-00	STOPPER, RING
33	♠;4-876-602-00	BRACKET, PANEL
34	♠;4-876-603-00	CLAMP
35	4-876-605-00	SCREW (B)
36	♠;4-876-607-00	COLLAR (E), PLATE, JACK
37	♠;4-876-610-00	HOLDER (B), PC BOARD
38	♠;4-876-611-00	RETAINER (B), JACK
39	♠;4-876-612-00	BRACKET, CONTROL
40	♠;4-876-613-01	CASE, UNIT (UPPER)
41	♠;4-876-613-11	CASE, UNIT (UPPER)
42	♠;4-876-613-21	CASE, UNIT (UPPER)
43	♠;4-876-613-31	CASE, UNIT (UPPER)
44	♠;4-876-613-41	CASE, UNIT (UPPER)
45	4-876-614-00	PANEL (B), SWITCH

GENERAL SECTION

No.	Part No.	Description
46	♠;4-876-615-01	CASE, UNIT (LOWER)
47	♠;4-876-615-11	CASE, UNIT (LOWER)
48	♠;4-876-615-21	CASE, UNIT (LOWER)
49	♠;4-876-615-31	CASE, UNIT (LOWER)
50	♠;4-876-615-41	CASE, UNIT (LOWER)
51	4-876-616-00	LID, SELECTION
52	....	
53	♠;4-876-617-11	PLATE, BOTTOM
54	4-876-618-00	ORNAMENT, BOARD, TOP
55	4-876-619-00	PANEL, FRONT
56	♠;4-876-620-01	PLATE, SIDE
57	4-876-621-00	PANEL (L), SIDE
58	4-876-622-00	PANEL (R), SIDE
59	♠;4-876-623-01	CHASSIS, POWER
60	♠;4-876-625-00	CHASSIS (D), SUB
61	....	
62	4-876-627-00	BOARD, TOP
63	4-876-628-01	ORNAMENT, JACK
64	4-876-628-11	ORNAMENT, JACK
65	4-876-629-00	PIN, ACTUATOR
66	4-876-630-00	BOSS, ACTUATOR
67	4-876-639-01	PLATE, JACK
68	7-621-284-00	SCREW +P 2.6X4
69	7-621-772-50	SCREW +B 2X10
70	7-621-775-20	SCREW +B 2.6X5
71	7-682-147-15	SCREW +P 3X6
72	7-682-247-09	SCREW +K 3X6
73	7-682-544-09	SCREW +B 3X3
74	7-682-546-09	SCREW +B 3X5
75	7-682-547-09	SCREW +B 3X6
76	7-682-548-09	SCREW +B 3X8
77	7-682-559-09	SCREW +B 4X5
78	7-682-646-09	SCREW +PS 3X5
79	7-682-662-09	SCREW +PS 4X10
80	7-683-402-04	BOLT,HEXAGON SOCKET 3X5
81	7-683-418-04	BOLT,HEXAGON SOCKET 4X6
82	7-683-421-04	BOLT,HEXAGON SOCKET 4X12
83	7-685-148-29	SCREW +PTP 3X12 TYPE2 SLIT
84	♠;A-4351-242-A	MOUNTED PCB, MAIN
85	....	
86	....	
87	♠;A-4394-245-A	MOUNTED PCB, PSUP
88	A-4490-080-A	UNIT (1) ASSY
89	A-4490-081-A	UNIT (2) ASSY
90	A-4490-082-A	UNIT (4) ASSY

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♠ " are not stocked since thev are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS

- MMH : mH, UH : μH

GENERAL SECTION

No.	Part No.	Description
91	X-4852-903-0	LEG ASSY
92	X-4870-208-0	KNOB ASSY
93	X-4870-209-0	KNOB ASSY, F
94	X-4876-601-0	KNOB ASSY, CONTROL
95	♠;X-4876-603-0	BRACKET (B) ASSY, SWITCH
96	4-854-434-00	CUSHION, UNIT
97	3-701-430-21	NUT, 7
98	♠;3-701-690-00	(UK)....LABEL, MADE IN JAPAN
99	4-876-637-00	(AEP)...LABEL, SPECIFICATION
99	4-876-638-00	(UK)....LABEL, SPECIFICATION

ACCESSORY & PACKING MATERIAL

No.	Part No.	Description
111	A-4490-078-A	UNIT (0) ASSY
112	A-4490-079-A	UNIT (3) ASSY
113	3-701-616-00	BAG, POLYETHYLENE
114	3-701-623-00	BAG, POLYETHYLENE
115	7-721-130-20	L-SHAPED WRENCH
116	3-783-551-11	MANUAL, INSTRUCTION
117	3-795-207-11	TECHNICAL INFORMATION
118	4-809-251-00	BAG, POLYETHYLENE
119	4-854-432-00	CASE, UNIT
120	4-876-631-00	CUSHION, FRONT
121	4-876-632-00	CUSHION, BACK
122	4-876-634-00	INDIVIDUAL CARTON
123	4-876-635-00	HOLDER, UNIT CASE

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
501	....				
502	1-228-251-00	RES, VAR, CARBON 20K			
503	1-507-567-00	PIN JACK 1P			
504	♠;1-508-809-00	BASE POST (14MM) 2P			
505	♠;1-508-810-00	14MM BASE POST			
506	♠;1-508-810-00	14MM BASE POST			
507	♠;1-508-811-00	BASE POST (14MM) 4P			
508	♠;1-508-812-00	BASE POST (14MM) 5P			
509	♠;1-508-878-00	BASE POST			
510	1-514-722-XX	SWITCH, MICRO (S8)			
511	1-518-331-81	LAMP, PILOT (PL1)			
512	1-533-131-00	HOLDER, FUSE			
513	1-535-108-00	GT PIN			
514	♠;1-535-116-00	TERMINAL			
515	♠;1-535-120-00	TERMINAL			
516	♠;1-535-232-00	PIN			
517	♠;1-535-364-00	PIN, RAPPING			
518	1-536-392-XX	L-TYPE TERMINAL STRIP			
519	1-553-728-00	SWITCH, ROTARY (S9,10)			
520	....				
521	⚠.1-555-795-00	CORD, POWER			
522	♠;1-560-060-00	PIN, CONNECTOR 2P			
523	♠;1-587-055-00	PC BOARD, PIN JACK			
524	♠;1-605-083-00	PC BOARD, UNIT 0A			
525	♠;1-605-084-00	PC BOARD, UNIT 0B			
526	♠;1-605-085-00	PC BOARD, UNIT 1A			
527	♠;1-605-086-00	PC BOARD, UNIT 1B			
528	♠;1-605-087-00	PC BOARD, UNIT 2A			
529	♠;1-605-088-00	PC BOARD, UNIT 2B			
530	♠;1-605-089-00	PC BOARD, UNIT 3A			
531	♠;1-605-090-00	PC BOARD, UNIT 3B			
532	♠;1-605-091-00	PC BOARD, UNIT 4A			
533	♠;1-605-092-00	PC BOARD, UNIT 4B			
534	♠;1-605-095-00	PC BOARD, BUS BOOST			
C101	1-130-289-00	FILM	0.0047MF	5%	100V
C103	1-130-691-00	FILM	1.0001MF		125V
C106	1-130-691-00	FILM	1.0001MF		125V
C107	1-130-691-00	FILM	1.0001MF		125V
C109	1-130-289-00	FILM	0.0047MF	5%	100V
C114	1-123-316-00	ELECT	10MF	20%	16V
C151	1-130-289-00	FILM	0.0047MF	5%	100V
C153	1-130-691-00	FILM	1.0001MF		125V
C156	1-130-691-00	FILM	1.0001MF		125V
C157	1-130-691-00	FILM	1.0001MF		125V
C159	1-130-289-00	FILM	0.0047MF	5%	100V
C201	1-130-289-00	FILM	0.0047MF	5%	100V
C203	1-130-289-00	FILM	0.0047MF	5%	100V
C251	1-130-289-00	FILM	0.0047MF	5%	100V
C253	1-130-289-00	FILM	0.0047MF	5%	100V

NOTE:

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- Items marked " ♠ " are not stocked since thev are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

COILS

- MMH : mH, UH : μH

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C305	1-131-520-00	TANTALUM	22MF	20%	160V
C306	1-130-301-00	FILM	0.015MF	5%	100V
C355	1-131-520-00	TANTALUM	22MF	20%	160V
C356	1-130-301-00	FILM	0.015MF	5%	100V
C405	1-131-520-00	TANTALUM	22MF	20%	160V
C406	1-130-301-00	FILM	0.015MF	5%	100V
C455	1-131-520-00	TANTALUM	22MF	20%	160V
C456	1-130-301-00	FILM	0.015MF	5%	100V
C503	1-131-520-00	TANTALUM	22MF	20%	160V
C504	1-130-301-00	FILM	0.015MF	5%	100V
C553	1-131-520-00	TANTALUM	22MF	20%	160V
C554	1-130-301-00	FILM	0.015MF	5%	100V
C611	1-130-175-00	FILM	0.082MF	2%	100V
C612	1-130-175-00	FILM	0.082MF	2%	100V
C613	1-130-175-00	FILM	0.082MF	2%	100V
C614	1-130-175-00	FILM	0.082MF	2%	100V
C615	1-130-174-00	FILM	0.043MF	2%	100V
C616	1-130-173-00	FILM	0.039MF	2%	100V
C617	1-130-126-00	FILM	0.056MF	2%	100V
C618	1-130-172-00	FILM	0.022MF	2%	100V
C621	1-130-172-00	FILM	0.022MF	2%	100V
C622	1-130-172-00	FILM	0.022MF	2%	100V
C623	1-130-172-00	FILM	0.022MF	2%	100V
C624	1-130-172-00	FILM	0.022MF	2%	100V
C625	1-130-171-00	FILM	0.012MF	2%	100V
C626	1-130-170-00	FILM	0.011MF	2%	100V
C627	1-130-125-00	FILM	0.016MF	2%	100V
C628	1-130-168-00	FILM	0.0062MF	2%	100V
C631	1-130-169-00	FILM	0.0091MF	2%	100V
C632	1-130-169-00	FILM	0.0091MF	2%	100V
C633	1-130-169-00	FILM	0.0091MF	2%	100V
C634	1-130-169-00	FILM	0.0091MF	2%	100V
C635	1-130-167-00	FILM	0.0047MF	2%	100V
C636	1-130-123-00	FILM	0.0043MF	2%	100V
C637	1-130-168-00	FILM	0.0062MF	2%	100V
C638	1-130-166-00	FILM	0.0024MF	2%	100V
C641	1-130-165-00	FILM	0.0022MF	2%	100V
C642	1-130-165-00	FILM	0.0022MF	2%	100V
C643	1-130-165-00	FILM	0.0022MF	2%	100V
C644	1-130-165-00	FILM	0.0022MF	2%	100V
C645	1-130-164-00	FILM	0.0012MF	2%	100V
C646	1-130-163-00	FILM	0.0011MF	2%	100V
C647	1-130-131-00	FILM	0.0016MF	2%	100V
C648	1-109-692-00	MICA	620PF	2%	500V
C701	1-131-520-00	TANTALUM	22MF	20%	160V
C702	1-123-687-00	ELECT	2200MF	20%	16V
C703	1-131-520-00	TANTALUM	22MF	20%	160V
C704	1-123-687-00	ELECT	2200MF	20%	16V
C706	1-131-450-00	TANTALUM	1MF	20%	35V
C708	1-131-450-00	TANTALUM	1MF	20%	35V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C709	1-107-277-00	MICA	5PF	0.5PF	100V
C709	1-131-520-00	TANTALUM	22MF	20%	160V
C710	1-107-277-00	MICA	5PF	0.5PF	100V
C751	1-131-520-00	TANTALUM	22MF	20%	160V
C752	1-123-687-00	ELECT	2200MF	20%	16V
C753	1-131-520-00	TANTALUM	22MF	20%	160V
C754	1-123-687-00	ELECT	2200MF	20%	16V
C756	1-131-450-00	TANTALUM	1MF	20%	35V
C758	1-131-450-00	TANTALUM	1MF	20%	35V
C759	1-107-277-00	MICA	5PF	0.5PF	100V
C759	1-131-520-00	TANTALUM	22MF	20%	160V
C760	1-107-277-00	MICA	5PF	0.5PF	100V
C801	1-123-842-00	ELECT	3300MF	20%	25V
C802	1-123-842-00	ELECT	3300MF	20%	25V
C803	1-123-842-00	ELECT	3300MF	20%	25V
C804	1-123-842-00	ELECT	3300MF	20%	25V
C805	1-123-494-	ELECT	100MF	20%	25V
C806	⚠.1-130-232-00	FILM	0.022MF	20%	300V
C901	1-131-450-00	TANTALUM	1MF	20%	35V
C902	1-131-450-00	TANTALUM	1MF	20%	35V
C903	1-131-450-00	TANTALUM	1MF	20%	35V
C904	1-131-450-00	TANTALUM	1MF	20%	35V
CNJ1 | CNJ12	♦;1-561-141-00	CONNECTOR, PC BOARD			
D101	8-719-210-20	DIODE 10YG2.0			
D102	8-719-210-20	DIODE 10YG2.0			
D103	8-719-210-20	DIODE 10YG2.0			
D104	8-719-210-20	DIODE 10YG2.0			
D105	8-719-210-20	DIODE 10YG2.0			
D106	8-719-210-20	DIODE 10YG2.0			
D107	8-719-210-20	DIODE 10YG2.0			
D108	8-719-210-20	DIODE 10YG2.0			
D109	8-719-210-20	DIODE 10YG2.0			
D110	8-719-210-20	DIODE 10YG2.0			
D111	8-719-210-20	DIODE 10YG2.0			
D112	8-719-210-20	DIODE 10YG2.0			
D113	8-719-210-20	DIODE 10YG2.0			
D114	8-719-210-20	DIODE 10YG2.0			
D115	8-719-210-20	DIODE 10YG2.0			
D116	8-719-210-20	DIODE 10YG2.0			
D117	8-719-210-20	DIODE 10YG2.0			
D151	8-719-210-20	DIODE 10YG2.0			
D152	8-719-210-20	DIODE 10YG2.0			
D153	8-719-210-20	DIODE 10YG2.0			
D154	8-719-210-20	DIODE 10YG2.0			
D155	8-719-210-20	DIODE 10YG2.0			
D156	8-719-210-20	DIODE 10YG2.0			
D157	8-719-210-20	DIODE 10YG2.0			
D158	8-719-210-20	DIODE 10YG2.0			

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers.

MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

COILS

- MMH : mH, UH : μH

ELECTRICAL PARTS

Ref.No.	Part No.	Description
D159	8-719-210-20	DIODE 10YG2.0
D160	8-719-210-20	DIODE 10YG2.0
D161	8-719-210-20	DIODE 10YG2.0
D162	8-719-210-20	DIODE 10YG2.0
D163	8-719-210-20	DIODE 10YG2.0
D164	8-719-210-20	DIODE 10YG2.0
D165	8-719-210-20	DIODE 10YG2.0
D166	8-719-210-20	DIODE 10YG2.0
D167	8-719-210-20	DIODE 10YG2.0
D702	8-719-201-11	DIODE 10YG1.1
D703	8-719-999-64	DIODE EQA01-06T2
D704	8-719-999-64	DIODE EQA01-06T2
D705	8-719-201-11	DIODE 10YG1.1
D706	8-719-999-64	DIODE EQA01-06T2
D707	8-719-201-11	DIODE 10YG1.1
D751	8-719-201-11	DIODE 10YG1.1
D752	8-719-201-11	DIODE 10YG1.1
D754	8-719-201-11	DIODE 10YG1.1
D755	8-719-201-11	DIODE 10YG1.1
D756	8-719-999-64	DIODE EQA01-06T2
D757	8-719-201-11	DIODE 10YG1.1
D758	8-719-999-64	DIODE EQA01-06T2
D801	8-719-230-02	DIODE 30DF2
D802	8-719-230-02	DIODE 30DF2
D803	8-719-230-02	DIODE 30DF2
D804	8-719-230-02	DIODE 30DF2
D805	8-719-510-10	DIODE S1RB10
D806	8-719-200-02	DIODE 10E-2
D807	8-719-815-55	DIODE 1S1555
D851	8-719-230-02	DIODE 30DF2
D852	8-719-230-02	DIODE 30DF2
D853	8-719-230-02	DIODE 30DF2
D854	8-719-230-02	DIODE 30DF2
F1	⚠.1-552-078-00	TIMELAG FUSE
PT1	⚠.1-447-056-00	TRANSFORMER, POWER
Q101	8-765-640-10	TRANSISTOR 2SK244-1
Q103	8-765-020-00	TRANSISTOR 2SA884
Q104	8-729-309-36	TRANSISTOR 2SA1027R
Q105	8-765-222-20	TRANSISTOR 2SC1963
Q106	8-765-640-10	TRANSISTOR 2SK244-1
Q108	8-765-020-00	TRANSISTOR 2SA884
Q109	8-729-309-36	TRANSISTOR 2SA1027R
Q110	8-765-222-20	TRANSISTOR 2SC1963
Q111	8-727-313-07	TRANSISTOR 2SK42-3
Q114	8-727-313-07	TRANSISTOR 2SK42-3

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q117	8-727-313-07	TRANSISTOR 2SK42-3
Q151	8-765-640-10	TRANSISTOR 2SK244-1
Q153	8-765-020-00	TRANSISTOR 2SA884
Q154	8-729-309-36	TRANSISTOR 2SA1027R
Q155	8-765-222-20	TRANSISTOR 2SC1963
Q156	8-765-640-10	TRANSISTOR 2SK244-1
Q158	8-765-020-00	TRANSISTOR 2SA884
Q159	8-729-309-36	TRANSISTOR 2SA1027R
Q160	8-765-222-20	TRANSISTOR 2SC1963
Q161	8-727-313-08	TRANSISTOR 2SK42-3
Q164	8-727-313-07	TRANSISTOR 2SK42-3
Q167	8-727-313-07	TRANSISTOR 2SK42-3
Q201	8-765-640-10	TRANSISTOR 2SK244-1
Q203	8-765-020-00	TRANSISTOR 2SA884
Q204	8-729-309-36	TRANSISTOR 2SA1027R
Q205	8-765-222-20	TRANSISTOR 2SC1963
Q206	8-765-640-10	TRANSISTOR 2SK244-1
Q208	8-765-020-00	TRANSISTOR 2SA884
Q209	8-729-309-36	TRANSISTOR 2SA1027R
Q210	8-765-222-20	TRANSISTOR 2SC1963
Q251	8-765-640-10	TRANSISTOR 2SK244-1
Q253	8-765-020-00	TRANSISTOR 2SA884
Q254	8-729-309-36	TRANSISTOR 2SA1027R
Q255	8-765-222-20	TRANSISTOR 2SC1963
Q256	8-765-640-10	TRANSISTOR 2SK244-1
Q258	8-765-020-00	TRANSISTOR 2SA884
Q259	8-729-309-36	TRANSISTOR 2SA1027R
Q260	8-765-222-20	TRANSISTOR 2SC1963
Q301	8-727-313-07	TRANSISTOR 2SK42-3
Q304	8-727-313-07	TRANSISTOR 2SK42-3
Q307	8-727-313-07	TRANSISTOR 2SK42-3
Q310	8-727-313-07	TRANSISTOR 2SK42-3
Q351	8-727-313-07	TRANSISTOR 2SK42-3
Q354	8-727-313-07	TRANSISTOR 2SK42-3
Q357	8-727-313-07	TRANSISTOR 2SK42-3
Q360	8-727-313-07	TRANSISTOR 2SK42-3
Q401	8-727-313-07	TRANSISTOR 2SK42-3
Q404	8-727-313-07	TRANSISTOR 2SK42-3
Q407	8-727-313-07	TRANSISTOR 2SK42-3
Q410	8-727-313-07	TRANSISTOR 2SK42-3
Q451	8-727-313-07	TRANSISTOR 2SK42-3
Q454	8-727-313-07	TRANSISTOR 2SK42-3
Q457	8-727-313-07	TRANSISTOR 2SK42-3
Q460	8-727-313-07	TRANSISTOR 2SK42-3
Q501	8-727-313-07	TRANSISTOR 2SK42-3
Q504	8-727-313-07	TRANSISTOR 2SK42-3
Q551	8-727-313-07	TRANSISTOR 2SK42-3
Q554	8-727-313-07	TRANSISTOR 2SK42-3
Q701	8-729-376-02	TRANSISTOR 2SD760
Q702	8-729-167-62	TRANSISTOR 2SC2676

NOTE:

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- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers.

MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

COILS

- MMH : mH, UH : μH

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
Q703	8-729-113-82	TRANSISTOR 2SA1138			
Q704	8-729-113-82	TRANSISTOR 2SA1138			
Q705	8-729-167-62	TRANSISTOR 2SC2676			
Q706	8-729-113-82	TRANSISTOR 2SA1138			
Q707	8-729-113-82	TRANSISTOR 2SA1138			
Q708	8-729-167-62	TRANSISTOR 2SC2676			
Q709	8-729-167-62	TRANSISTOR 2SC2676			
Q710	8-729-372-02	TRANSISTOR 2SB720			
Q751	8-729-376-02	TRANSISTOR 2SD760			
Q752	8-729-167-62	TRANSISTOR 2SA2676			
Q753	8-729-113-82	TRANSISTOR 2SA1138			
Q754	8-729-113-82	TRANSISTOR 2SA1138			
Q755	8-729-167-62	TRANSISTOR 2SC2676			
Q756	8-729-113-82	TRANSISTOR 2SA1138			
Q757	8-729-113-82	TRANSISTOR 2SA1138			
Q758	8-729-167-62	TRANSISTOR 2SA2676			
Q759	8-729-167-62	TRANSISTOR 2SC2676			
Q760	8-729-372-02	TRANSISTOR 2SB720			
Q801	8-729-663-47	TRANSISTOR 2SC1364			
Q802	8-729-103-43	TRANSISTOR 2SB734			
R101	1-214-173-00	METAL	51K	1%	1/4W
R102	1-214-844-00	METAL	150	1%	1/2W
R103	1-214-844-00	METAL	150	1%	1/2W
R104	1-214-869-00	METAL	1.6K	1%	1/2W
R105	1-214-869-00	METAL	1.6K	1%	1/2W
R107	1-214-840-00	METAL	100	1%	1/2W
R108	1-214-816-00	METAL	10	1%	1/2W
R109	1-214-848-00	METAL	220	1%	1/2W
R110	1-214-816-00	METAL	10	1%	1/2W
R111	1-214-840-00	METAL	100	1%	1/2W
R112	1-214-840-00	METAL	100	1%	1/2W
R113	1-214-913-00	METAL	100K	1%	1/2W
R114	1-214-840-00	METAL	100	1%	1/2W
R115	1-214-844-00	METAL	150	1%	1/2W
R116	1-214-869-00	METAL	1.6K	1%	1/2W
R117	1-214-869-00	METAL	1.6K	1%	1/2W
R119	1-214-816-00	METAL	10	1%	1/2W
R120	1-214-816-00	METAL	10	1%	1/2W
R121	1-214-848-00	METAL	220	1%	1/2W
R123	1-214-840-00	METAL	100	1%	1/2W
R124	1-214-840-00	METAL	100	1%	1/2W
R126	1-214-840-00	METAL	100	1%	1/2W
R127	1-214-180-00	METAL	100K	1%	1/4W
R128	1-214-913-00	METAL	100K	1%	1/2W
R129	1-214-872-00	METAL	2.2K	1%	1/2W
R133	1-214-840-00	METAL	100	1%	1/2W
R134	1-214-180-00	METAL	100K	1%	1/4W
R135	1-214-913-00	METAL	100K	1%	1/2W
R136	1-214-872-00	METAL	2.2K	1%	1/2W
R140	1-214-840-00	METAL	100	1%	1/2W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R141	1-214-180-00	METAL	100K	1%	1/4W
R142	1-214-913-00	METAL	100K	1%	1/2W
R143	1-214-872-00	METAL	2.2K	1%	1/2W
R147	1-214-840-00	METAL	100	1%	1/2W
R148	1-214-180-00	METAL	100K	1%	1/4W
R151	1-214-173-00	METAL	51K	1%	1/4W
R152	1-214-844-00	METAL	150	1%	1/2W
R153	1-214-844-00	METAL	150	1%	1/2W
R154	1-214-869-00	METAL	1.6K	1%	1/2W
R155	1-214-869-00	METAL	1.6K	1%	1/2W
R157	1-214-840-00	METAL	100	1%	1/2W
R158	1-214-816-00	METAL	10	1%	1/2W
R159	1-214-848-00	METAL	220	1%	1/2W
R160	1-214-816-00	METAL	10	1%	1/2W
R161	1-214-840-00	METAL	100	1%	1/2W
R162	1-214-840-00	METAL	100	1%	1/2W
R163	1-214-913-00	METAL	100K	1%	1/2W
R164	1-214-840-00	METAL	100	1%	1/2W
R165	1-214-844-00	METAL	150	1%	1/2W
R166	1-214-869-00	METAL	1.6K	1%	1/2W
R167	1-214-869-00	METAL	1.6K	1%	1/2W
R169	1-214-816-00	METAL	10	1%	1/2W
R170	1-214-816-00	METAL	10	1%	1/2W
R171	1-214-848-00	METAL	220	1%	1/2W
R173	1-214-840-00	METAL	100	1%	1/2W
R174	1-214-840-00	METAL	100	1%	1/2W
R176	1-214-840-00	METAL	100	1%	1/2W
R177	1-214-180-00	METAL	100K	1%	1/4W
R178	1-214-913-00	METAL	100K	1%	1/2W
R179	1-214-872-00	METAL	2.2K	1%	1/2W
R183	1-214-840-00	METAL	100	1%	1/2W
R184	1-214-180-00	METAL	100K	1%	1/4W
R185	1-214-913-00	METAL	100K	1%	1/2W
R186	1-214-872-00	METAL	2.2K	1%	1/2W
R190	1-214-840-00	METAL	100	1%	1/2W
R191	1-214-180-00	METAL	100K	1%	1/4W
R192	1-214-913-00	METAL	100K	1%	1/2W
R193	1-214-872-00	METAL	2.2K	1%	1/2W
R197	1-214-840-00	METAL	100	1%	1/2W
R198	1-214-180-00	METAL	100K	1%	1/4W
R201	1-214-156-00	METAL	10K	1%	1/4W
R202	1-214-159-00	METAL	13K	1%	1/4W
R203	1-214-163-00	METAL	20K	1%	1/4W
R204	1-214-156-00	METAL	10K	1%	1/4W
R205	1-214-159-00	METAL	13K	1%	1/4W
R206	1-214-163-00	METAL	20K	1%	1/4W
R207	1-214-156-00	METAL	10K	1%	1/4W
R208	1-214-159-00	METAL	13K	1%	1/4W
R209	1-214-163-00	METAL	20K	1%	1/4W
R210	1-214-156-00	METAL	10K	1%	1/4W

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- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R211	1-214-159-00	METAL	13K	1%	1/4W
R212	1-214-163-00	METAL	20K	1%	1/4W
R213	1-214-844-00	METAL	150	1%	1/2W
R214	1-214-844-00	METAL	150	1%	1/2W
R215	1-214-869-00	METAL	1.6K	1%	1/2W
R216	1-214-869-00	METAL	1.6K	1%	1/2W
R218	1-214-816-00	METAL	10	1%	1/2W
R219	1-214-816-00	METAL	10	1%	1/2W
R220	1-214-848-00	METAL	220	1%	1/2W
R221	1-214-840-00	METAL	100	1%	1/2W
R222	1-214-840-00	METAL	100	1%	1/2W
R223	1-214-840-00	METAL	100	1%	1/2W
R224	1-214-844-00	METAL	150	1%	1/2W
R225	1-214-844-00	METAL	150	1%	1/2W
R226	1-214-869-00	METAL	1.6K	1%	1/2W
R227	1-214-869-00	METAL	1.6K	1%	1/2W
R229	1-214-816-00	METAL	10	1%	1/2W
R230	1-214-816-00	METAL	10	1%	1/2W
R231	1-214-848-00	METAL	220	1%	1/2W
R232	1-214-840-00	METAL	100	1%	1/2W
R233	1-214-840-00	METAL	100	1%	1/2W
R234	1-214-840-00	METAL	100	1%	1/2W
R236	1-214-840-00	METAL	100	1%	1/2W
R251	1-214-156-00	METAL	10K	1%	1/4W
R252	1-214-159-00	METAL	13K	1%	1/4W
R253	1-214-163-00	METAL	20K	1%	1/4W
R254	1-214-156-00	METAL	10K	1%	1/4W
R255	1-214-159-00	METAL	13K	1%	1/4W
R256	1-214-163-00	METAL	20K	1%	1/4W
R257	1-214-156-00	METAL	10K	1%	1/4W
R258	1-214-159-00	METAL	13K	1%	1/4W
R259	1-214-163-00	METAL	20K	1%	1/4W
R260	1-214-156-00	METAL	10K	1%	1/4W
R261	1-214-159-00	METAL	13K	1%	1/4W
R262	1-214-163-00	METAL	20K	1%	1/4W
R263	1-214-844-00	METAL	150	1%	1/2W
R264	1-214-844-00	METAL	150	1%	1/2W
R265	1-214-869-00	METAL	1.6K	1%	1/2W
R266	1-214-869-00	METAL	1.6K	1%	1/2W
R268	1-214-816-00	METAL	10	1%	1/2W
R269	1-214-816-00	METAL	10	1%	1/2W
R270	1-214-848-00	METAL	220	1%	1/2W
R271	1-214-840-00	METAL	100	1%	1/2W
R272	1-214-840-00	METAL	100	1%	1/2W
R273	1-214-840-00	METAL	100	1%	1/2W
R274	1-214-844-00	METAL	150	1%	1/2W
R275	1-214-844-00	METAL	150	1%	1/2W
R276	1-214-869-00	METAL	1.6K	1%	1/2W
R277	1-214-869-00	METAL	1.6K	1%	1/2W
R279	1-214-816-00	METAL	10	1%	1/2W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R280	1-214-816-00	METAL	10	1%	1/2W
R281	1-214-848-00	METAL	220	1%	1/2W
R282	1-214-840-00	METAL	100	1%	1/2W
R283	1-214-840-00	METAL	100	1%	1/2W
R284	1-214-840-00	METAL	100	1%	1/2W
R286	1-214-840-00	METAL	100	1%	1/2W
R301	1-214-156-00	METAL	10K	1%	1/4W
R302	1-214-158-00	METAL	12K	1%	1/4W
R303	1-214-163-00	METAL	20K	1%	1/4W
R304	1-214-158-00	METAL	12K	1%	1/4W
R305	1-214-160-00	METAL	15K	1%	1/4W
R306	1-214-165-00	METAL	24K	1%	1/4W
R307	1-214-153-00	METAL	7.5K	1%	1/4W
R308	1-214-155-00	METAL	9.1K	1%	1/4W
R309	1-214-160-00	METAL	15K	1%	1/4W
R310	1-214-162-00	METAL	18K	1%	1/4W
R311	1-214-165-00	METAL	24K	1%	1/4W
R312	1-214-169-00	METAL	36K	1%	1/4W
R313	1-214-156-00	METAL	10K	1%	1/4W
R314	1-214-159-00	METAL	13K	1%	1/4W
R315	1-214-163-00	METAL	20K	1%	1/4W
R316	1-214-156-00	METAL	10K	1%	1/4W
R317	1-214-159-00	METAL	13K	1%	1/4W
R318	1-214-163-00	METAL	20K	1%	1/4W
R319	1-214-156-00	METAL	10K	1%	1/4W
R320	1-214-159-00	METAL	13K	1%	1/4W
R321	1-214-163-00	METAL	20K	1%	1/4W
R322	1-214-156-00	METAL	10K	1%	1/4W
R323	1-214-159-00	METAL	13K	1%	1/4W
R324	1-214-163-00	METAL	20K	1%	1/4W
R325	1-214-872-00	METAL	2.2K	1%	1/2W
R328	1-214-872-00	METAL	2.2K	1%	1/2W
R331	1-214-913-00	METAL	100K	1%	1/2W
R332	1-214-872-00	METAL	2.2K	1%	1/2W
R335	1-214-872-00	METAL	2.2K	1%	1/2W
R339	1-214-840-00	METAL	100	1%	1/2W
R351	1-214-156-00	METAL	10K	1%	1/4W
R352	1-214-158-00	METAL	12K	1%	1/4W
R353	1-214-163-00	METAL	20K	1%	1/4W
R354	1-214-158-00	METAL	12K	1%	1/4W
R355	1-214-160-00	METAL	15K	1%	1/4W
R356	1-214-165-00	METAL	24K	1%	1/4W
R357	1-214-153-00	METAL	7.5K	1%	1/4W
R358	1-214-155-00	METAL	9.1K	1%	1/4W
R359	1-214-160-00	METAL	15K	1%	1/4W
R360	1-214-162-00	METAL	18K	1%	1/4W
R361	1-214-165-00	METAL	24K	1%	1/4W
R362	1-214-169-00	METAL	36K	1%	1/4W
R363	1-214-156-00	METAL	10K	1%	1/4W
R364	1-214-159-00	METAL	13K	1%	1/4W

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♠ " are not stocked since thev are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:
- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS
- MMH : mH, UH : μH

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R365	1-214-163-00	METAL	20K	1%	1/4W
R366	1-214-156-00	METAL	10K	1%	1/4W
R367	1-214-159-00	METAL	13K	1%	1/4W
R368	1-214-163-00	METAL	20K	1%	1/4W
R369	1-214-156-00	METAL	10K	1%	1/4W
R370	1-214-159-00	METAL	13K	1%	1/4W
R371	1-214-163-00	METAL	20K	1%	1/4W
R372	1-214-156-00	METAL	10K	1%	1/4W
R373	1-214-159-00	METAL	13K	1%	1/4W
R374	1-214-163-00	METAL	20K	1%	1/4W
R375	1-214-872-00	METAL	2.2K	1%	1/2W
R378	1-214-872-00	METAL	2.2K	1%	1/2W
R381	1-214-913-00	METAL	100K	1%	1/2W
R382	1-214-872-00	METAL	2.2K	1%	1/2W
R385	1-214-872-00	METAL	2.2K	1%	1/2W
R389	1-214-840-00	METAL	100	1%	1/2W
R401	1-214-156-00	METAL	10K	1%	1/4W
R402	1-214-158-00	METAL	12K	1%	1/4W
R403	1-214-163-00	METAL	20K	1%	1/4W
R404	1-214-158-00	METAL	12K	1%	1/4W
R405	1-214-160-00	METAL	15K	1%	1/4W
R406	1-214-165-00	METAL	24K	1%	1/4W
R407	1-214-153-00	METAL	7.5K	1%	1/4W
R408	1-214-155-00	METAL	9.1K	1%	1/4W
R409	1-214-160-00	METAL	15K	1%	1/4W
R410	1-214-162-00	METAL	18K	1%	1/4W
R411	1-214-165-00	METAL	24K	1%	1/4W
R412	1-214-169-00	METAL	36K	1%	1/4W
R413	1-214-156-00	METAL	10K	1%	1/4W
R414	1-214-159-00	METAL	13K	1%	1/4W
R415	1-214-163-00	METAL	20K	1%	1/4W
R416	1-214-156-00	METAL	10K	1%	1/4W
R417	1-214-159-00	METAL	13K	1%	1/4W
R418	1-214-163-00	METAL	20K	1%	1/4W
R419	1-214-156-00	METAL	10K	1%	1/4W
R420	1-214-159-00	METAL	13K	1%	1/4W
R421	1-214-163-00	METAL	20K	1%	1/4W
R422	1-214-156-00	METAL	10K	1%	1/4W
R423	1-214-159-00	METAL	13K	1%	1/4W
R424	1-214-163-00	METAL	20K	1%	1/4W
R425	1-214-872-00	METAL	2.2K	1%	1/2W
R428	1-214-872-00	METAL	2.2K	1%	1/2W
R431	1-214-913-00	METAL	100K	1%	1/2W
R432	1-214-872-00	METAL	2.2K	1%	1/2W
R435	1-214-872-00	METAL	2.2K	1%	1/2W
R439	1-214-840-00	METAL	100	1%	1/2W
R451	1-214-156-00	METAL	10K	1%	1/4W
R452	1-214-158-00	METAL	12K	1%	1/4W
R453	1-214-163-00	METAL	20K	1%	1/4W
R454	1-214-158-00	METAL	12K	1%	1/4W

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R455	1-214-160-00	METAL	15K	1%	1/4W
R456	1-214-165-00	METAL	24K	1%	1/4W
R457	1-214-153-00	METAL	7.5K	1%	1/4W
R458	1-214-155-00	METAL	9.1K	1%	1/4W
R459	1-214-160-00	METAL	15K	1%	1/4W
R460	1-214-162-00	METAL	18K	1%	1/4W
R461	1-214-165-00	METAL	24K	1%	1/4W
R462	1-214-169-00	METAL	36K	1%	1/4W
R463	1-214-156-00	METAL	10K	1%	1/4W
R464	1-214-159-00	METAL	13K	1%	1/4W
R465	1-214-163-00	METAL	20K	1%	1/4W
R466	1-214-156-00	METAL	10K	1%	1/4W
R467	1-214-159-00	METAL	13K	1%	1/4W
R468	1-214-163-00	METAL	20K	1%	1/4W
R469	1-214-156-00	METAL	10K	1%	1/4W
R470	1-214-159-00	METAL	13K	1%	1/4W
R471	1-214-163-00	METAL	20K	1%	1/4W
R472	1-214-156-00	METAL	10K	1%	1/4W
R473	1-214-159-00	METAL	13K	1%	1/4W
R474	1-214-163-00	METAL	20K	1%	1/4W
R475	1-214-872-00	METAL	2.2K	1%	1/2W
R478	1-214-872-00	METAL	2.2K	1%	1/2W
R481	1-214-913-00	METAL	100K	1%	1/2W
R482	1-214-872-00	METAL	2.2K	1%	1/2W
R485	1-214-872-00	METAL	2.2K	1%	1/2W
R489	1-214-840-00	METAL	100	1%	1/2W
R501	1-214-156-00	METAL	10K	1%	1/4W
R502	1-214-158-00	METAL	12K	1%	1/4W
R503	1-214-163-00	METAL	20K	1%	1/4W
R504	1-214-158-00	METAL	12K	1%	1/4W
R505	1-214-160-00	METAL	15K	1%	1/4W
R506	1-214-165-00	METAL	24K	1%	1/4W
R507	1-214-153-00	METAL	7.5K	1%	1/4W
R508	1-214-155-00	METAL	9.1K	1%	1/4W
R509	1-214-160-00	METAL	15K	1%	1/4W
R510	1-214-162-00	METAL	18K	1%	1/4W
R511	1-214-165-00	METAL	24K	1%	1/4W
R512	1-214-169-00	METAL	36K	1%	1/4W
R513	1-214-872-00	METAL	2.2K	1%	1/2W
R516	1-214-872-00	METAL	2.2K	1%	1/2W
R520	1-214-840-00	METAL	100	1%	1/2W
R551	1-214-156-00	METAL	10K	1%	1/4W
R552	1-214-158-00	METAL	12K	1%	1/4W
R553	1-214-163-00	METAL	20K	1%	1/4W
R554	1-214-158-00	METAL	12K	1%	1/4W
R555	1-214-160-00	METAL	15K	1%	1/4W
R556	1-214-165-00	METAL	24K	1%	1/4W
R557	1-214-153-00	METAL	7.5K	1%	1/4W
R558	1-214-155-00	METAL	9.1K	1%	1/4W
R559	1-214-160-00	METAL	15K	1%	1/4W

NOTE:

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- Items marked " ♠ " are not stocked since thev are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

COILS

- MMH : mH, UH : μH

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
R560	1-214-162-00	METAL	18K	1%	1/4W
R561	1-214-165-00	METAL	24K	1%	1/4W
R562	1-214-169-00	METAL	36K	1%	1/4W
R563	1-214-872-00	METAL	2.2K	1%	1/2W
R566	1-214-872-00	METAL	2.2K	1%	1/2W
R570	1-214-840-00	METAL	100	1%	1/2W
R701	1-214-132-00	METAL	1K	1%	1/4W
R702	1-214-151-00	METAL	6.2K	1%	1/4W
R703	1-214-096-00	METAL	33	1%	1/4W
R704	1-214-128-00	METAL	680	1%	1/4W
R705	1-214-128-00	METAL	680	1%	1/4W
R706	1-214-878-00	METAL	3.9K	1%	1/2W
R707	1-214-096-00	METAL	33	1%	1/4W
R708	1-214-132-00	METAL	1K	1%	1/4W
R710	1-214-128-00	METAL	680	1%	1/4W
R711	1-214-128-00	METAL	680	1%	1/4W
R712	1-214-878-00	METAL	3.9K	1%	1/2W
R713	1-214-882-00	METAL	7.5K	1%	1/2W
R714	1-214-151-00	METAL	6.2K	1%	1/4W
R751	1-214-132-00	METAL	1K	1%	1/4W
R752	1-214-151-00	METAL	6.2K	1%	1/4W
R753	1-214-096-00	METAL	33	1%	1/4W
R754	1-214-128-00	METAL	680	1%	1/4W
R755	1-214-128-00	METAL	680	1%	1/4W
R756	1-214-878-00	METAL	3.9K	1%	1/2W
R757	1-214-096-00	METAL	33	1%	1/4W
R758	1-214-132-00	METAL	1K	1%	1/4W
R760	1-214-128-00	METAL	680	1%	1/4W
R761	1-214-128-00	METAL	680	1%	1/4W
R762	1-214-878-00	METAL	3.9K	1%	1/2W
R763	1-214-882-00	METAL	7.5K	1%	1/2W
R764	1-214-151-00	METAL	6.2K	1%	1/4W
R801	1-214-140-00	METAL	2.2K	1%	1/4W
R802	1-214-172-00	METAL	47K	1%	1/4W
R803	1-214-156-00	METAL	10K	1%	1/4W
R804	1-214-172-00	METAL	47K	1%	1/4W
R805	1-214-132-00	METAL	1K	1%	1/4W
R806	1-214-140-00	METAL	2.2K	1%	1/4W
R807	1-244-809-00	CARBON	2.2	5%	1/2W
R808	1-244-855-00	CARBON	180	5%	1/2W
R901	1-214-888-00	METAL	10K	1%	1/2W
R902	1-214-885-00	METAL	7.5K	1%	1/2W
R903	1-214-882-00	METAL	7.5K	1%	1/2W
R904	1-214-880-00	METAL	4.7K	1%	1/2W
R905	1-214-840-00	METAL	100	1%	1/2W
R906	1-214-937-00	METAL	1M	1%	1/2W
R907	1-214-880-00	METAL	4.7K	1%	1/2W
R908	1-214-882-00	METAL	7.5K	1%	1/2W
R909	1-214-883-00	METAL	6.2K	1%	1/2W
R910	1-214-890-00	METAL	12K	1%	1/2W

ELECTRICAL PARTS

Ref.No.	Part No.	Description
RT101	1-224-247-XX	RES, ADJ, METAL GLAZE 100
RT102	1-224-247-XX	RES, ADJ, METAL GLAZE 100
RT151	1-224-247-XX	RES, ADJ, METAL GLAZE 100
RT152	1-224-247-XX	RES, ADJ, METAL GLAZE 100
RT201	1-224-247-XX	RES, ADJ, METAL GLAZE 100
RT202	1-224-247-XX	RES, ADJ, METAL GLAZE 100
RT251	1-224-247-XX	RES, ADJ, METAL GLAZE 100
RT252	1-224-247-XX	RES, ADJ, METAL GLAZE 100
RY1	1-515-323-00	RELAY
RY2	1-515-323-00	RELAY
RY3	1-515-323-00	RELAY
RY4	1-515-323-00	RELAY
RY5	1-515-323-00	RELAY
RY6	1-515-323-00	RELAY
RY7	1-515-323-00	RELAY
RY8	1-515-323-00	RELAY
S1	1-552-381-00	SWITCH, ROTARY SLIDE
S2	1-552-381-00	SWITCH, ROTARY SLIDE
S3	1-552-381-00	SWITCH, ROTARY SLIDE
S4	1-552-381-00	SWITCH, ROTARY SLIDE
S5	1-552-381-00	SWITCH, ROTARY SLIDE
S6	1-552-381-00	SWITCH, ROTARY SLIDE
S7	⚠.1-552-975-00	SWITCH, AC
VS	⚠.1-552-963-00	SWITCH, VOLT SELECT

NOTE:

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- Items marked " ♠ " are not stocked since thev are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

COILS

- MMH : mH, UH : μH

ELECTROLYTIC CAPACITORS

RATING →: Use the high voltage rated one.

CAP. (µF)	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00
1.0					→	1-121-391-00
2.2					→	1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-419-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	–	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	–
3300	1-121-661-00	1-123-075-00	1-123-071-00	–	–	–

CAP. (µF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	–	–	–	–
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	–	1-123-028-00
3.3	1-121-995-00	–	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	–	–
47	1-123-251-00	1-121-919-00	–	–
100	1-123-084-00	–	–	–

CERAMIC CAPACITORS

RATING

CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (µF)	50 VOLT.
	PART No.		PART No.		PART No.		PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001µF = 1,000pF

CERAMIC (SEMICONDUCTOR) CAPACITORS

RATING →: Use the high voltage rated one.

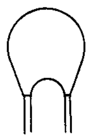
CAP. (µF)	25 VOLT.	50 VOLT.	CAP. (µF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			

MYLAR CAPACITORS

RATING

CAP. (µF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (µF)	50 VOLT.	100 VOLT.	200 VOLT.	CAP. (µF)	50 VOLT.	100 VOLT.	200 VOLT.
	PART No.	PART No.	PART No.		PART No.	PART No.	PART No.		PART No.	PART No.	PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	–	–
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	–	–
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	–	–
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	–	–
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				

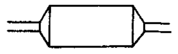
TANTALUM CAPACITORS



RATING →: Use the high voltage rated one.

CAP. (µF)	3.15 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	25 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.01					→	→	1-131-396-00
0.015						→	1-131-397-00
0.022						→	1-131-398-00
0.033						→	1-131-399-00
0.047						→	1-131-400-00
0.068					→	→	1-131-401-00
0.1					→	→	1-131-402-00
0.15					→	→	1-131-403-00
0.22					→	→	1-131-404-00
0.33					→	1-131-409-00	1-131-405-00
0.47	–	–	–	–	1-131-412-00	→	1-131-406-00
0.68	–	–	–	1-131-415-00	→	1-131-410-00	1-131-407-00
1.0	–	–	1-131-418-00	–	1-131-413-00	→	1-131-408-00
1.5	–	1-131-421-00	–	1-131-416-00	→	1-131-411-00	1-131-348-00
2.2	1-131-424-00	–	1-131-419-00	–	1-131-414-00	1-131-355-00	1-131-349-00
3.3	–	1-131-422-00	–	1-131-417-00	1-131-362-00	1-131-356-00	1-131-350-00
4.7	1-131-425-00	–	1-131-420-00	1-131-369-00	1-131-363-00	1-131-357-00	1-131-351-00
6.8	–	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	1-131-358-00	1-131-352-00
10	1-131-426-00	1-131-383-00	1-131-377-00	1-131-371-00	1-131-365-00	1-131-359-00	1-131-353-00
15	1-131-390-00	1-131-384-00	1-131-378-00	1-131-372-00	1-131-366-00	1-131-360-00	–
22	1-131-391-00	1-131-385-00	1-131-379-00	1-131-373-00	1-131-367-00		
33	1-131-392-00	1-131-386-00	1-131-380-00	1-131-374-00			
47	1-131-393-00	1-131-387-00	1-131-381-00	–			
68	1-131-394-00	1-131-388-00	–	–			
100	1-131-395-00	–	–	–			

TANTALUM CAPACITORS



RATING

CAP. (µF)	3 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	35 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.033						1-131-273-00
0.047						1-131-274-00
0.068						1-131-275-00
0.1						1-131-276-00
0.15						1-131-277-00
0.22			–	–	1-131-262-00	1-131-278-00
0.33			–	–	1-131-263-00	1-131-279-00
0.47			1-131-169-00	–	1-131-264-00	1-131-280-00
0.68			–	1-131-258-00	1-131-265-00	1-131-281-00
1.0			1-131-254-00	–	1-131-266-00	1-131-282-00
1.5		1-131-250-00	–	–	1-131-267-00	1-131-283-00
2.2		–	–	1-131-259-00	1-131-268-00	1-131-284-00
3.3		–	1-131-255-00	–	1-131-269-00	–
4.7		1-131-251-00	1-131-171-00	–	1-131-270-00	–
6.8		–	–	1-131-260-00	1-131-271-00	–
10	–	–	1-131-256-00	–	1-131-272-00	–
15	–	1-131-252-00	–	1-131-261-00		
22	–	–	1-131-257-00	–		
33	1-131-176-00	1-131-253-00	1-131-173-00	–		
47	1-131-288-00	1-131-174-00	–	–		
100	1-131-177-00					

1/4 WATT CARBON RESISTORS

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

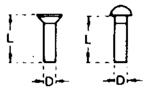
Screw: – P 3 x 10

L: *Length in mm*

D: *Diameter in mm*

Type of head

Indicated slotted-head only.
Unless otherwise indicated, it means
cross-recessed head (Phillips type).



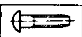
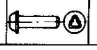
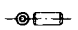
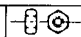
Nut, Washer, Retaining ring:

N 3

Diameter of usable screw or shaft

Reference designation

Reference Designation	Shape	Description	Remarks
		SCREWS	
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		braizer-head screw	

Reference Designation	Shape	Description	Remarks
		SELF-TAPPING SCREWS	
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
		SET SCREWS	
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
		NUT	
N		nut	
		WASHERS	
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
		RETAINING RINGS	
E		retaining ring	
G		grip-type retaining ring	

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